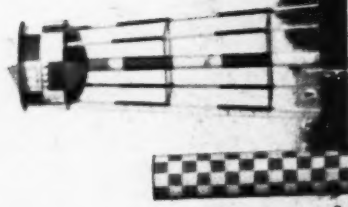


MR. A. V. PERKINS,
47 WALGROVE PARK,
DOBBS FERRY, N.Y.

12



MORE "TACKHOLE" AND "TARGET" TRIUMPHS!

800 x 800 by FRED CLEMENS
with "TARGET"



FRED CLEMENS of the Wilkes-Barre Rifle Team, in practice shooting with iron sights, turned in two perfect scores including 62 X's over the Dewar match course. Notice the remarkably close groupings at both 50 and 100 yards! He shot Peters Target .22's.

400 x 400 by MISS MIRALOTTI SAUER
with "TACKHOLE"



MISS MIRALOTTI SAUER scored 400 x 400, 32 X's, on July 31st at Fort Sheridan, Ill., in a scope sight Dewar match. Her last bull at 100 yards (above, right) is a 10 X possible. All her targets show plenty of X's. Again—notice the close groupings! She shot Peters "Tackhole" .22's.

1189 x 1200 by E. N. MOOR
with "TACKHOLE"



E. N. (NED) MOOR, shooting in the Second Annual U.S. Grant Memorial Matches at Rockford, Ill., won the first match over

the Dewar course Any Sights with the almost perfect score of 399, and grabbed the Iron Sight Aggregate with 1189. He shot Peters "Tackhole" .22's.



PETERS "TACKHOLE" .22's will score possible every time from 50 feet to 200 yards if your aim is right. You get more X's, too, because there's less variation in the center of impact.

PETERS "TARGET" .22's are a sensational new type of cartridge that combine the two features desired most by all shooters—flatter trajectory, plus the accuracy of a match cartridge. Grease lubricated, perfectly balanced bullet, brass cases, and Rustless priming.



PETERS



PETERS CARTRIDGE DIVISION, Remington Arms Co., Inc., Bridgeport, Conn.
MEMBER AMERICAN WILDLIFE INSTITUTE, "FOR A MORE ABUNDANT GAME SUPPLY"

"Tackhole", "Target", and "Rustless" are Peters Cartridge Division trade marks

THE AMERICAN RIFLEMAN

COMING

THE National Matches this year are expected to be the greatest ever, and our October issue will carry a complete story of them. The story will be written by C. B. Lister, Secretary-Treasurer of the N. R. A., and will be somewhat different from the usual Perry story. It will cover not only the competitive angle of the big shoot, but the human angle as well, with interesting sidelights and observations. Be sure to read it.

Monroe Goode's article on binoculars, begun in this issue, will be concluded in October.

Scheduled for publication in an early issue is an article by Walter F. Roper on modern communication systems for the rifle range. Though better known as a pistol shooter, Mr. Roper knows something about rifle-shooting too, and has made a considerable study of the communication problem. He seems to have the final answer to it, which is very clearly set forth in his article. Every club member will be interested in what Mr. Roper has to say.

Some men are born to be gunsmiths, and Mark Burnham, of Savannah, Georgia, is one of these. From early childhood he longed for a gun, but could not get the money to buy one with. Finally, while still a boy, he made one, from the crudest of materials and with the simplest of tools. But it worked, and he had a great deal of pleasure with it, and killed much small game. In a story that has real human interest, Mr. Burnham tells of making this, his first gun. We have the story set up in type, and scheduled for an early issue.

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CONTENTS

COVER PHOTO

Taken at Camp Perry, Ohio, by U. S. Signal Corps in 1937.
Picture shows portion of 200-yard firing line.

POWDER SMOKE	2
DUPLEX LOADS BY ELMER KEITH	3
FRONTIER FIREARMS BY JAMES H. COOK	6
THE LIGHT SIDE-ARM BY M. DuMOND	7
CORK WADS AGAIN BY F. R. KRAUSE	8
PORTABLE BENCH RESTS BY F. C. NESS	9
SHOTGUN MANUFACTURE BY A. P. CURTIS	12
ON OFFHAND SHOOTING BY JOSEPH A. MILNER	17
FROM ACROSS THE WATER	18
THE EGG GOES DOGGING BY REX JEWETT	22
PRISMATIC BINOCULARS BY MONROE H. GOODE	23
HANDGUN GRIPS BY ELLIOTT JONES	27
NEWS ITEMS	34
DOPE BAG	42
ARMS CHEST	48

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POWDER SMOKE

UNDER ONE BANNER

EACH year at Camp Perry we are impressed anew with the variety of interests that have been welded into the single institution we know as the National Rifle Association of America. On the right of the firing line the Junior School is populated with youngsters of high-school age who are learning to shoot and engaging in competition with the same enthusiasm and the same ideals that they carry into track and field and other interscholastic sports. On the extreme left of the line the police are hard at work in school and competition, with the serious-minded attitude of men who know that the fast and accurate handling of a gun is, in their occupation, the best life-insurance policy.

Between the two extremes so well typified by the right and left of the firing line, is to be found every conceivable variety of rifle and pistol shooter. There are the professional soldiers, sailors, and Marines to whom Service-rifle and pistol shooting is an important subject, but only one of many which must be mastered; the civilian soldiers of the National Guard and Officers Reserve Corps, for whom Service-rifle and pistol shooting is not merely a military subject but also a means of acquiring experience in the handling of men and material, and a program of competition helpful to enlistments and morale. Then, from every state in the Union and every walk in life, the civilian shooters come: from city tenements and apartments, from northern farms, from western ranches, and from southern plantations. Professional men, business men, mechanics, and clerks. Some of these civilians, like their brothers in the uniformed services, want to shoot nothing but the Service rifle. Others have their cup of joy filled to overflowing only when they can spread themselves at 1,000 yards, cuddle some type of "Magnum" Match Rifle, and study the mirage through a telescope sight; while still others can see not too much sense in taking the thudding recoil of the big guns, and are enamored of the superlative accuracy and the freedom of equipment restrictions which are typical of the small bore rifle game.

Among the pistol men precisely the same varied interests exist. We find men whose greatest pleasure lies in a mastery of the heavy Service automatic; others who are primarily seeking accuracy and have turned to the longer-barreled muzzle-heavy target guns; still others who prefer the slow-fire game; and,

finally, those who like to shoot it out "over the course."

Certainly the fact that all of these types and all of these varied interests have been brought together in a common bond of interest and under the single banner of one Association is a magnificent tribute to the sportsmanship of the American shooter, and to his willingness to accept compromise and discipline under intelligent, capable leadership.

But, despite all this variety at Camp Perry, the National Matches represent *only one segment* of the interests and personalities which make up the whole of the National Rifle Association. There are thousands of field shots who would take no interest whatever in the heated discussions at Camp Perry relative to match guns and ammunition, sights, cash prizes, and "what have you." There are thousands of collectors who have no interest at all in the latest development of super-accurate guns, but who have hundreds and even thousands of dollars invested in weapons which are beautiful examples of the jewelers' and lock-makers' arts. There are thousands of public-spirited citizens, probably poor shots by Camp Perry standards, who support the Association because they believe it is doing a job that needs to be done in providing for the future national defense or in teaching good sportsmanship, self-discipline, and gun safety to the rising generation. There are still others who appreciate the unceasing struggle to prevent the passage of that type of state and Federal legislation which seeks to place the gun-lover in the same category as the active or potential criminal.

It is certain that no shooting association anywhere else in the world even *approximates* the breadth of scope of the National Rifle Association of America. It is doubtful if any other national association in the United States is more truly national in the breadth of its field of active interests, and in the breadth—geographically and socially—of its active membership.

Whether or not you "get to Perry"; whether or not you are even interested in that segment of the wide-flung activities of your Association, you can most certainly take pride in the wearing of the silver or gold lapel button which proclaims your membership in The National Rifle Association of America—the emblem of sixty-seven years of service to the nation and its gun-lovers.

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DUPLEX LOADS

By ELMER KEITH

NOTE.—We are glad to publish this article of Mr. Keith's for the information it contains. We ourselves have not used, or even seen, any Duplex ammunition, and know nothing about it beyond what is told here.—Ed.

AFTER FINISHING the .250 O'Neil development, C. M. O'Neil and I decided to develop a .285 cartridge throwing a long, heavy 180-grain bullet at the highest possible velocity compatible with free, easy-working pressures and maximum accuracy, for a big-game rifle for use primarily on sheep, goat, antelope, and mule deer. We developed the .250 O'Neil Magnum merely as a coyote rifle, yet many hunters wanted this cartridge for big game. Charlie O'Neil refused to make up rifles for the cartridge for many, on this account. We did not believe the cartridge was large enough or powerful enough for all-around big-game shooting.

We wanted a cartridge that would handle a 180-grain bullet of superior sectional density and good ballistic shape at 3200 feet, if possible. I had already done considerable experimental work with the .280 Dubiel Magnum, and both of us had worked for many years with the .300 Magnum—both the old Hoffman abrupt-shoulder case which I started using in 1926, and the new .300 H. & H. case with long, sloping shoulder. While it was possible and entirely practicable to get a velocity of 3000 feet with these cartridges with 180-grain bullets, we wanted at least two hundred feet additional velocity. Also we wanted long, heavy bullets that would maintain their velocity and energy—and the resultant shocking effect—out where the game was actually hit, and not just at the muzzle.

Charlie made up the first experimental case in January 1936, by necking-down the .30 Newton case to .285". We thought for some time that this case would prove exactly what we wanted and would produce the desired results. My .280 Dubiel experiments had clearly shown the value of the greater sectional density of the .280-caliber 180-grain bullet as compared to the same weight of bullet in .30-caliber. This 180-grain Western Tool and Copper Works bullet has greater sectional density than a 220-grain .30-caliber bullet. It was less affected by cross winds, and seemed to retain its velocity and killing energy farther than the same weight of bullet at the same velocity from the .300 Magnum.

During the fall of 1937, our friend Don Hopkins wrote me about developing a new cartridge of .285 persuasion that would give higher velocities with long, heavy bullets than either the .276 Dubiel or the .280 Dubiel. I wrote him what Charlie and I were attempting, and he at once became very much interested, and decided to work with us. All three of us agreed on what the final cartridge should do: give at least 3200 feet velocity with 180-grain bullets.

While experimenting with different loads in the first version of the .250 O'Neil cartridge (made by necking-down the .30 Newton case), I noticed that the barrel heated very quickly. In fact a few shots heated it to such an extent that I could light a smoke on it. This did not look right to me, and while I was pondering over the problem, an idea came to my ivory pate. However, I then saw no way of putting this idea into practice. Charlie had long entertained the same idea, and told me so while visiting me here last summer. After going home, he hit upon a plan for putting his idea to actual test, and carried on these tests for several months, working alone. After finally proving to his own satisfaction that it was not just another brain storm, he sent me a heavy steel plate cleanly perforated with the new load, in comparison with deep dents made by conventional loads of known velocity. He also sent me the fired primers; and well knowing that he could not obtain such velocities with conventional loading, I wrote him saying that he must be following the same idea that I had developed; and his next letter proved this to be a fact. Then I wrote Don, and told him that I was now sure we could get exactly what he wanted in a big-game rifle.

I then joined Charlie in the actual experiments. He had already eliminated a great many jokers from the new system of loading, and the 71st method tried proved to be correct. We soon found that the new system of loading introduced many problems hitherto unheard of. Many of the first experiments were very disheartening, to say the least; but we were really learning something of modern rifle-powder combustion. Finally we found a way to absolutely control combustion, and then decided to call the new system of loading the Duplex system, and cartridges so loaded Duplex cartridges, regardless of caliber.

After Charlie and I had done a great deal of experimenting with Duplex loads in many different cases, Charlie necked-down the .30-'06 case to hold bullets of .285" diameter, and we found that this cartridge was just what we wanted. We decided to call it the .285 O. K. H. Duplex, Charlie and Don having coined the name. I had loaded and experimented with Duplex loads in my .280 Dubiel until I had a load that would shoot through considerably more steel and give a flatter trajectory than the factory-loaded 180-grain .300 Magnum; and with lower pressure. However, we found that the new .285 O. K. H. Duplex 180-grain load gave even better results than my Duplex load in the .280 Dubiel. Charlie had also experi-

mented with the new .220 Swift, .30-'06, and .30 and .35 Newton cartridges with Duplex loads, and found that much higher velocities were easily obtained in all of them, together with greater accuracy, lower breech pressure, and much cooler burning of the powder as well. Pressures were in all cases the most uniform he had ever had. Don and I had also tested Duplex loads with 180-grain bullets in the .30 Newton, and like Charlie, had obtained wonderful results. In fact we were amazed at the performance of this load. Velocities were very high, with pressures so low that one finger was all that was required to open the bolt on a fired case, while the cases themselves simply fell out of the rifle. In fact, when the rifle was fired without the extractor, all that was necessary to remove the empty case was to open the bolt and jar the rifle very slightly, whereupon the fired case fell out.

Charlie found that with the .30-'06 case and 220-grain bullets he had no trouble at all in duplicating the old Hoffman and Western .300 Magnum ballistics with 220-grain bullets, as was clearly shown by penetration in steel plates. Moreover, pressures were much lower in the .30-'06 case. Cases seldom needed more than neck resizing, and in fact Charlie fired one case with Duplex loads fifty times without injury. I also experimented with, and worked up some splendid Duplex loads for, the .300 Magnum, finding from comparative tests on steel plate, and also trajectory, that velocities were considerably increased over those of factory loads, with less pressure, free and easy extraction, and almost no heating of the barrel.

Next Charlie determined to find out the effect of excessive headspace on the Duplex loads, and purposely chambered a rifle with very excessive headspace, so that a long striker was necessary to fire the load. No harm was done at all, and repeated trials seemed to indicate that excess headspace was not dangerous with Duplex loads. The same heavy charges he used in this test would simply take the head off a conventionally loaded cartridge case. O'Neil also decided to sacrifice an Enfield rifle, and tried to blow it up with enormous charges of powder and 220-grain boat-tail bullets; but after 40 shots with such loads he found that he could not blow up the rifle with Duplex loads with any proper rifle powder. So much for the safety factor of Duplex loads.

Charlie sent out the first .285 O. K. H. Duplex rifle and some 200 loads with 180-grain W. T. C. bullets for Don and me to test, and we spent two days together here at the ranch trying them out on steel plates and for trajectory. We used Don's Winchester Model 70 .300 Magnum with factory 180-grain loads at a known velocity of 3060 feet as a check on the new .285 O. K. H. Duplex 180-grain loads. We soon found that our new cartridge was very cool, the barrel never heating—even after a long string—until it was uncomfortable to the hand. Also, it warmed up first at the tip of the forestock instead of at the breech, as with conventional loads.

Imagine our surprise when we found that our little .285 O. K. H. Duplex cartridge with long 180-grain bullet resisted to .2845" actually penetrated more steel at all ranges from 20 yards to 300 yards than did the Winchester factory-loaded 180-grain .300 Magnum. This .300 Magnum load has a reported velocity of 3060 feet per second, yet it penetrated only a little more than half way through the heavy $\frac{3}{4}$ " steel plates at 20 yards, while our new .285 cartridge drilled clean holes completely through, blowing small cakes out of the heavy plates. We then moved a plate back to 50 yards, and the little .285 O. K. H. Duplex still drilled it cleanly. I also tested the conventional 180-grain loads in the .280 Dubiel for a further check, and they did not

show quite as deep penetration as the factory 180-grain .300 Magnum loads. At 300 yards the much greater sectional density of the 180-grain .285-caliber bullets resulted in an even greater superiority in penetration over the .30-caliber 180-grain boat-tail bullets, showing clearly that the greater sectional density was more than equalling the effect of the boat-tail of the .30-caliber.

Fired cases extracted very easily, one finger being all that was required to lift the bolt handle. The results looked incredible for such a small, light-weight cartridge. Penetration in steel plates is considered a fair basis for velocity comparison, so I will leave it to the reader to speculate as to what velocity we are getting. Our estimate is from 3200 to 3300 feet with 180-grain bullets, and 3500 feet with 160-grain bullets. We were now certain we had reached, and even surpassed, our ultimate goal, and we have a little cartridge the size and shape of the .30-'06 that greatly excels the big .300 Magnum with the same 180-grain bullets, due entirely to the Duplex system of loading. Moreover, pressures are much lighter than those of the factory .300 Magnum loads, the fired primers suggesting about 45,000 pounds.

I next sighted-in the rifle to center its group at 400 yards, and then turned it on a target at 200 yards without changing the elevation on the scope; and found that it grouped just $5\frac{1}{4}$ inches high, indicating the flattest-shooting rifle I had ever fired with 180-grain loads.

When writing up the .280 Dubiel Magnum for this magazine some years ago, I expressed my wish for a bullet in that caliber of from 160 to 170 grains in weight, with a really modern streamlined spitzer point and a diameter of .2885". For there is no horse sense in developing a long-range load, and then losing a large proportion of the velocity because of a blunt-pointed bullet, of poor ballistic shape. Since then a great many other rifle cranks all over this country have written Western Tool and Copper, asking for such a bullet; and Don, Charlie, and I continued to ask for it, with the result that W. T. C. finally brought out the exact bullet we had in mind, but in .2845" diameter. It is a splendidly shaped missile. This bullet is not yet in regular production, and only a small supply was available when Charlie tested it, but he found that he could get a very high velocity with good accuracy in the .285 O. K. H. Duplex. Tests showed much better penetration in steel than the 180-grain .285 Duplex load gave, so velocity must be considerably higher. We can only estimate it at present, but believe it to be around 3500 feet. Certainly it must be near that figure, if the steel-plate-penetration test of both the 160 and 180-grain loads is any indication.

The new bullet has a very thick, heavy jacket at the base, drawn thin at the point for certain expansion out at long range. The thick jacket over the major portion of the sides of the bullet insures reasonably good penetration even at such extremely high velocities. We found that these 160 and 180-grain W. T. C. bullets tended to roll up in a ball upon impact with flesh, rather than to disintegrate as do so many bullets of harder composition; and this in turn gave better average penetration, as a good portion of the bullet holds together, to travel on through the game.

Don favors the 160-grain bullet for sheep and similar game, due to its better ballistic shape, while I like the heavier weight of the 180-grain bullet, as I prefer to use just one weight of bullet, learn the trajectory of that one bullet, and then use it on everything.

Charlie fitted my rifle with a Neidner barrel of 26" length and the same outside dimensions as the Enfield Service barrel, and cut with a ten-inch twist and a groove diameter of .2885". With this groove diameter I can use

the 180-grain W. T. C. bullets without having to resize them. I intend to carry this .285 O. K. H. Duplex rifle and loads with me this fall when I will be guiding. Also, Don intends to take rifles for our new load with him to Alberta this fall, and use them on the game there. We should learn by the end of the hunting season what it will do on Idaho and Alberta big game.

We should like to see all these various groove diameters in 7-mm. and .280-caliber standardized at .2845", and thus eliminate some of this confusion; and we hope W. T. C. will bring out the 180-grain bullet in the exact shape of their new 160-grain, and the same diameter—.2845". This would do much to standardize these calibers and make them more popular. The 160-grain bullet should prove the best for sheep, goat, antelope, mule deer, coyotes, and similar game, owing to its very high velocity and extremely flat trajectory, while the 180-grain should be the thing when one turns the rifle on heavier game. We do not know how it will perform on heavy game, but intend to find out. Certainly this will prove to be the most deadly cartridge ever produced for our lighter big game. The 180-grain bullet is so flat-shooting that I prefer to use it exclusively, rather than mess around with two different weights of bullet in the same rifle.

The new cartridge with 180-grain bullet may prove to be a better killer at over 300 yards than the time-tried .35 Whelen, .35 Newton, and .375 Magnums. Certainly it will retain its terrific velocity and energy farther out than any other cartridge we know of. At shorter ranges, where the extreme velocity of the .285 O. K. H. Duplex may cause the bullet to explode too much with not enough penetration, we believe the larger-caliber heavy-bullet cartridges will prove the better killers. However, only time and extensive tests on heavy game will tell.

These heavy-caliber cartridges are perfectly adapted to Duplex loads, however, and our tests show that we can greatly increase their velocities with any weight of bullets; and then they will be much more powerful than at present. Also, pressures can be decreased with our new system of loading. How far the thing will eventually go, I have not the imagination to predict. Certainly our little .285 O. K. H. Duplex cartridge loaded with a 160-grain boat-tail bullet at 3500 feet velocity should make the very finest military cartridge in existence, while from a sporting standpoint we feel that we have developed the finest long-range rifle cartridge in the world today. Accuracy is excellent, and Charlie obtained many ten-shot groups of only three inches or less at 400 yards, shooting from bench rest, with scope. The twist did not seem to be just right at close ranges, and groups were not as small in proportion as at longer ranges. Probably the bullets were spinning a little too fast at 100 yards, and had not traveled far enough to "go to sleep," or stop spiralling.

Vertical dispersion of groups seems always to be very much less than with conventional loads. Don and I fired a group at 700 yards with the .30 Newton and 180-grain Duplex loads, and found the vertical dispersion to be less than 6 inches. Primers are always identical in appearance after firing with Duplex loads, and the firing-pin indentations stay deep in the primers, and do not flow back as in the case of conventional loads. We found that velocities actually decrease, and accuracy falls off, when the powder charge is excessive, and once the peak of the pressure curve is reached, any increase in the charge does not increase velocities, but does cause a loss in accuracy.

After firing 800 rounds of .285 O. K. H. Duplex loads through one barrel, the throat was not blackened in the

least, there was no trace of erosion, and the groove diameter of the throat remained exactly the same as before the barrel was fired. Only the rear ends of the lands showed a gradual rounding off from the friction of hard bullet jackets, and not from gas-cutting, as with conventional loads. So throat erosion (beyond this gradual flattening of the lands from bullet friction) is now a thing of the past. The fired primers to the eye indicate a pressure of some 45,000 pounds or less. The free, easy extraction of fired cases further indicates very low chamber pressures.

Duplex loads are also much cooler-burning than any other loads we have ever fired, and should greatly prolong barrel life. Also muzzle flash has been eliminated, even with 22" barrels. Duplex loads leave a very light, soft fouling in the bore—never enough to in any way affect accuracy, yet the bore appears as if grease wads had been used. Also, a small star appears on the muzzle of the barrel after a string of shots has been fired, the same as when grease wads are used, or many of the greased high-speed .22 L. R. cartridges.

Recoil is different with all cartridges that we have tried with Duplex loads. It is actually heavier, but is a slow, sustained, heavy push rather than the sharp jab of conventional high-velocity loads in all calibers. Don is sensitive to recoil, while Charlie and I are not, so Don did some shooting to determine the difference in recoil of Duplex loads. He found that the new .285 O. K. H. Duplex 180-grain load did not bother him at all, and he enjoyed shooting it, while he did feel the effect of high-velocity factory loads like the .300 Magnum.

It is our belief that the Duplex system of loading rifle cartridges will in time prove to be the most important development in rifle ammunition since the advent of smokeless powder. It has actually been hard at times for us to believe our own senses.

Duplex cartridges should prove to be the best yet for all military purposes, and should function better and more safely in both machine guns and rifles than anything heretofore ever produced. They can be machine-loaded or hand-loaded, and at a very slight increase in cost over conventional loads—probably only a fraction of a cent a round.

We started out to develop a sheep rifle, and feel that we have surely done so; but we stumbled upon something of far greater magnitude than we at first realized, and which should revolutionize the loading of rifle cartridges. We have not yet decided what to do with it, though Charlie has had offers of capital to put the thing on a commercial basis.

When properly made up the Duplex loads are by far the safest of all high-velocity rifle ammunition, but the principles of the system must be thoroughly understood in order to produce such loads. Charlie found that a Duplex cartridge improperly loaded would simply blow the head off the cartridge case at each shot, it acting exactly like a powerful overload in any standard cartridge.

Please do not write me for further information, as there will be none forthcoming for the present. Just as soon as I am at liberty to do so I will write a detailed account of the whole development for publication in this magazine, and it should be of interest to all rifle lovers. In it I will tell how, and why, we load cartridges to obtain the above-mentioned results. At present I can only say that the Duplex system is perfectly applicable to most all modern rifle cartridges.

Don Hopkins, O'Neil, and I were responsible for the .285 O.K.H. Duplex.



The Author and Short Bull, old Sioux warrior. Picture taken at Fort Robinson, Nebraska in 1935

FRONTIER FIREARMS

By JAMES H. COOK

NOTE: The author of this article, Capt. James H. Cook, of Agate, Nebraska, is one of the last of the true old-time Western scouts and hunters. When he speaks on the subject of frontier matters, including firearms, it is with undisputed authority.—Ed.

IN THE EARLY seventies, down in southwest Texas, the majority of white men who then inhabited that section of the country were armed with Colt or Remington muzzle-loading revolvers, they being of the type used by soldiers of the Civil War period. They were at that time considered to be the most reliable revolvers carried by men on the frontiers, either when in warfare with Indians or in a shooting scrape with men in some dance-hall or saloon.

I became the owner of one of those muzzle-loading Colt revolvers, with which I shot numerous cotton-tail rabbits and other kinds of wild animals which were plentiful at that time in the country where the dense growth of prickly pear cactus and chaparral gave them protection.

By chance I happened to secure a copper powder flask made especially for use with such a revolver as I owned. It could contain six charges of powder and was constructed with a shut-off measuring gauge attached and an enclosed compartment which would hold six bullets and a number of percussion caps. It was the only one of its kind I ever saw. As it was very small I could carry it in my trousers pocket.

The long-barreled, heavy, muzzle-loading rifles or the army muskets were not popular as saddle arms among cattlemen of southwest Texas. The Spencer carbine, with its metallic cartridge, was the favorite saddle gun for a short period, at one time. But with all its shocking power, the heavy bullet driven by the small charge of powder lacked one essential: that of accuracy. Consequently when the Henry rifle was introduced into Texas "society" it became at once a popular arm, as, within its range, it was a very accurate shooting iron and could be fired very rapidly, and contained sixteen leaden messengers as well.

The Winchester model of 1873 soon replaced the Henry as a saddle gun rifle on all parts of the western frontier. For big-game hunting the Sharps and Remington heavy-bore rifles became the favorites with many hunters. But, now and then, a "Long Tom" .50 or .70 Springfield infantry U. S. army rifle was used by buffalo hide hunters, as cartridges for this rifle could usually be secured from frontier

army posts, so no loose ammunition had to be carried about for reloading the big shells of the .50 caliber 120-grain Sharps, or the Remington rifles.

The breech block of the Sharps rifle proved to be the best and safest of all those big-game rifles. Now and then the shell chamber of the Remington would become foul and a hunter would try to force a cartridge into the rifle by pounding on the breech block with his hand or a rock, which would cause the old rim-fire cartridge to explode, making a hospital case of a hunter by tearing his hand off or doing him great damage otherwise.

During the years I spent as a market hunter of big game in the Rocky Mountain region, I used a number of different kinds of rifles before coming to the conclusion that the one which suited me best was a .40-90 Sharps "Old Reliable" sporting rifle. The bullet might not have the sledge-hammer shock of the large-bore rifles, but I found out that, by placing a bullet in the proper place, I would have some meat to carry to camp.

After deciding that the Sharps .40-90 rifle was my choice among those then used by the hunters on our western frontiers, the problem was to secure ammunition for it which would give uniform results as to accuracy. As it was of an unusual caliber, cartridges for it could not be obtained at some places where others of a more commonly used caliber could. So reloading the cartridges for it was the only right thing to do. I secured the best rifle powder obtainable, and purchased factory-moulded bullets and paper patches, as they were far superior to those of the home-made variety. The art of attaching those patches to the bullets quickly, could be acquired.

Great care in reloading the shells was necessary, to secure uniform results. I used a set-trigger, as a "creepy" trigger defeats accurate shooting. Not only our "bread and butter," but even our lives might be at stake, when contending with hostile Indians who might then be encountered, occasionally. I found that the generally accepted be-

(Continued on page 11)



THE LIGHT SIDE-ARM

By M. DuMOND

YES, THE GUN PICTURED here is the .32 Automatic Colt. The regular gun has always just fallen short of being an ideal side-arm for the woodsman, because the barrel and sighting radius are too short and the sights are not the best for small-game shooting. Yet, despite these undesirable features, this gun has always been popular with outdoorsmen, a class far different from that which the gun was originally designed to serve.

As the name implies, this Colt automatic pistol is a "Pocket Model." However, the very features that make it a pocket model, make it also a real side-arm when fitted with a six-inch barrel and suitable sights.

The potential accuracy of the original gun is great in the hand of a pistol shot that understands the little weapon, and it is improved by the added barrel length and sighting radius. The original barrel is $3\frac{3}{4}$ inches long, and the gun weighs about 24 ounces. The additional muzzle weight of the altered gun makes the gun considerably easier to hold, while the sighting radius is $8\frac{1}{2}$ inches. I fit the gun with a $\frac{3}{32}$ -inch ivory bead on a ramp, and a U-notch rear. This type of sight equipment seems to be preferred by the majority of woodsmen for small-game shooting although patridge-type sights can be fitted if desired.

In this little gun we have a long-barreled, extremely compact weapon that is easily and inconspicuously carried, and of unexcelled reliability. Malfunctions rarely if ever occur with good ammunition.

It is interesting to note here that the chamber on this new barrel is much tighter than the original Colt chamber. The cases look more like those shot from a good revolver, and lack the characteristic bulge near the head. They are consequently easier to resize, and last longer, when reloaded.

For small game the .32 A. C. P. is excellent; and in fact, it is just about ideal for game of the camp-meat variety. The .22 L. R. cartridge has always left much to be desired for most of us in this respect. The fact that the .22 L. R. is a poor killer is well known to almost everyone who has used it extensively on small game.

Several years ago I determined to make a test using the .22 L. R. and the .38 Special, both guns to be used under the same conditions and on the same game, including snow-shoe rabbits, jacks, grouse of all kinds, and porcupines. I took all shots offered up to approximately 50 yards, intending to compare my game average with that over the Standard American Target course. Of 50 shots tried with the

.38 Special, I made 35 clean kills, hit and lost 2, and missed 13. That makes an average of 70%, or about 15 points below my average at that time over the Standard American. The gun used was a Smith & Wesson outdoorsman.

With the K22 I made 20 kills out of 50 shots taken, and some of these were hard to find after being shot. That left 30 head lost. Of this number, at least 17 were hit and lost—not a very pleasing average. On cottontails the average of the .22 would be considerably higher, as snowshoes and jacks are rather hard to kill, as are porcupines unless hit in the head. This is true even with guns of heavy caliber. After this tally, I realized that we had been losing more game with the .22 than was necessary.

We had plenty of guns of larger caliber; why not use them? Well, most of them had altogether too much of what the .22 lacked in the first place. For the power and shock of guns like the grand old Peacemaker, the average woodsman has little use. The size and weight of guns of this type make grand ballast, but in a place where ballast is absolutely not in order. They are in the way more or less, no matter where or how you carry them. While I am far from diminutive in size, standing six feet and tipping the scale around two hundred pounds, I can't pack one of these big guns all day and not come in at night with a sort of feeling that I look like the Chinese aviator, One Wing Lo. But the little .32 Automatic Colt can be worn like a watch, and you have no excuse for leaving it in camp when you may need it.

As Mr. Wagar said of it in the RIFLEMAN of August, 1931: "It is not a deep-wilderness side-arm capable of meeting all emergencies unaided, but as a light pistol to accompany the big rifle, it has many advantages."

An extra clip of cartridges weighs little, and is easily carried. Shot from a 6-inch barrel this little cartridge has surprising range and penetration. It is small and light, but something like the bantam-sized recruit who was asked by the hard-boiled sergeant: "What cher name?" The pint-sized soldier walked up to the sergeant, and, glaring up at him, said: "My name is Percy, but don't let it fool you."

Many people have the mistaken idea that a .45 will kill almost anything by shock alone, which is far from true.

I have never tried the .32 on anything larger than big porcupines, but many experiences with them have convinced me that, like jacks, they require good holding, even with heavy calibers.

CORK WADS AGAIN

By F. R. KRAUSE

NOTE: In connection with the use of cork wads and grease wads, it should be borne in mind that these wads take up a definite amount of space in a cartridge case, which increases the density of loading and raises the pressure. Therefore maximum safe powder charges in rifle or pistol ammunition should be reduced when cork or grease wads are used.—Ed.

I VERY MUCH appreciate the good intentions of Mr. Emil Swatos in warning readers of the danger in using cork wads, especially in revolvers (February issue of *THE RIFLEMAN*); but, while Mr. Swatos no doubt knows all about cork, his letter shows a complete lack of understanding of the use of sheet-cork wads in rifle and pistol cartridges.

I have now used cork gas-check wads in rifles for about four years, and in revolvers for about a year; and some of my customers have been using them for some time in revolvers. While cork wads will almost entirely stop leading in some revolvers, it is in the rifle that they really come into their own. Many owners of the older rifles, who have a mould for a plain-base bullet and do not care to invest in a gas-check mould (which they probably could not get), can, with cork gas-check wads, work up a safe and powerful load suitable for almost any game. With the wad and the proper smokeless powder, the bullet will stand any charge that the action of the rifle and the cartridge case will take. Always begin with a reduced load, and work up, and you will find a load that will fit your needs, and be accurate.

The cork wad protects the bullet from the hot powder gases, and the only heat that the bullet absorbs is from friction and from the hot barrel. Of course we could use a copper gas-check (if we could get it), and reverse it behind the plain-base bullet, but there are many of us who get a lot of kick out of using our own makings, as far as we can.

Just to see what protection the cork gas-check would give to the base of the bullet, I loaded about thirty .30-40 cartridges with 31 grains of Hi-Vel No. 2 and the Lyman gas-check bullet No. 308284, cast with a flat point and weighing 197 grains. I could have used the 311413 bullet, but I wanted to make the test about as severe as possible. The velocity was about 2100 f.-s., and the base of the bullet was protected with the cork wad only. This load, as I expected, was not accurate at 100 yards, but must have had some push, as all the bullets we recovered, after being fired into a hard sand bank, weighed only from 31 to 55 grains. But the base of the bullets did not show the slightest indication of having been near anything hot.

I have used cork wads in the .38 Special, with 3.9 grains of No. 6 and my 150-grain bullet; and 5.5 grains of Unique and No. 358311 hollow-point bullet—131 grains. Cork wads recovered showed no sign of having been used, except that the side next to the powder had a smudge, as if one had blackened the finger tip slightly, and rubbed it on the wad.

It might interest readers to know of the results one of my customers had from dipping the bases of my 150-grain .38 Special bullets into hot melted colloidal graphite lubricant of my own formula, and loading the bullets in front of 14 grains of Hercules 2400 in the .357 Magnum revolver. My regular lubricant was used in the bullet grooves. Bullets recovered after being shot through a good-sized telephone pole and two or three inches of sand, seemed to have the original amount of this colloidal graphite lubricant on the base, and in the same place as when loaded. But some

of the graphite must have been washed off and deposited in the bore, as there was not the slightest trace of leading. If 14 grains of 2400 in the .357 Magnum case does not seem even to soften this lubricant on the base of the bullet, I do not believe that we have to worry about the cork wad. I dip the bases of all the 150-grain Service bullets I shoot into this same lubricant, and it considerably prevents metal fouling. Sometimes I have no metal fouling at all. I have used the base-dipping method for quite a while, because I do not believe that sheet-graphite wads can be depended upon to stay in place. When the base is dipped in hot melted lubricant, I know the lubricant will stay there.

The experienced reloader can readily see what type of sheet cork to use for wads, by looking at the drawing of the inserting tool in the December issue of *THE RIFLEMAN*, but for the benefit of the many beginners I will state that the sheet cork must be soft, flexible, and compressible. I use the ground sheet cork such as is used in making oil-pan gaskets, etc., for automobiles. It can be had at almost any garage or supply house.

As to the cost of these cork wads, for the man that does not want to bother with making them, my price is \$1.00 per 1000 for all sizes up to and including .38 caliber; and they can be had in any caliber, while the copper gas-check cannot. One can get the sheet cork, have a punch made, and cut out his own.

Never use glue to hold the wad to the base of the bullet, as this is not necessary, and may cause trouble. If a little glue were dropped down on the wad to make it stick to the bullet, as Mr. Swatos suggests in the February issue, the wad would not only adhere to the cartridge case when the glue dried, and so increase the pressure, but would stay with the bullet and retard its flight. I believe the best way to use the wad, when the shell-neck is long enough, is to seat the wad a little below the mouth of the case, and fill this space with a soft bullet lubricant. Colloidal graphite lubricant softened with castor oil is very good. If this cannot be obtained, a mixture of Alemite high-pressure grease and beeswax, equal parts, can be used.

There are several reasons why a cork wad, properly made and inserted, will not drop down, or even be jarred down, into the powder space. For one thing, the wad being larger in diameter than the inside of the shell, and being compressed from all sides for inserting, really offers enough friction to hold it in place. Then again, the wad being close up against the base of the bullet, the wad and bullet (when properly fitted) make an air-tight joint. If you will take a properly made cork wad and insert it correctly into the neck of a cartridge case, and then tap the head of the case on the bench, I believe that your arm will get good and tired long before the wad moves a particle—and I think all will agree that this test is much more severe than the recoil of any revolver or pistol.

Should anyone wish more information about cork wads, I shall be glad to answer any questions I can, when stamped envelope is enclosed. My address is: 801 East Coal Avenue, Albuquerque, New Mexico.

PORTABLE BENCH RESTS

By F. C. NESS

A BENCH REST consists of a table, for elbow-and-barrel support, and a seat. They are commonly used in testing laboratories but without any of the portability features so important to the individual tester who must carry the rest to a distant range. This essential requirement makes its construction more of a problem. This problem has been solved in various ways.

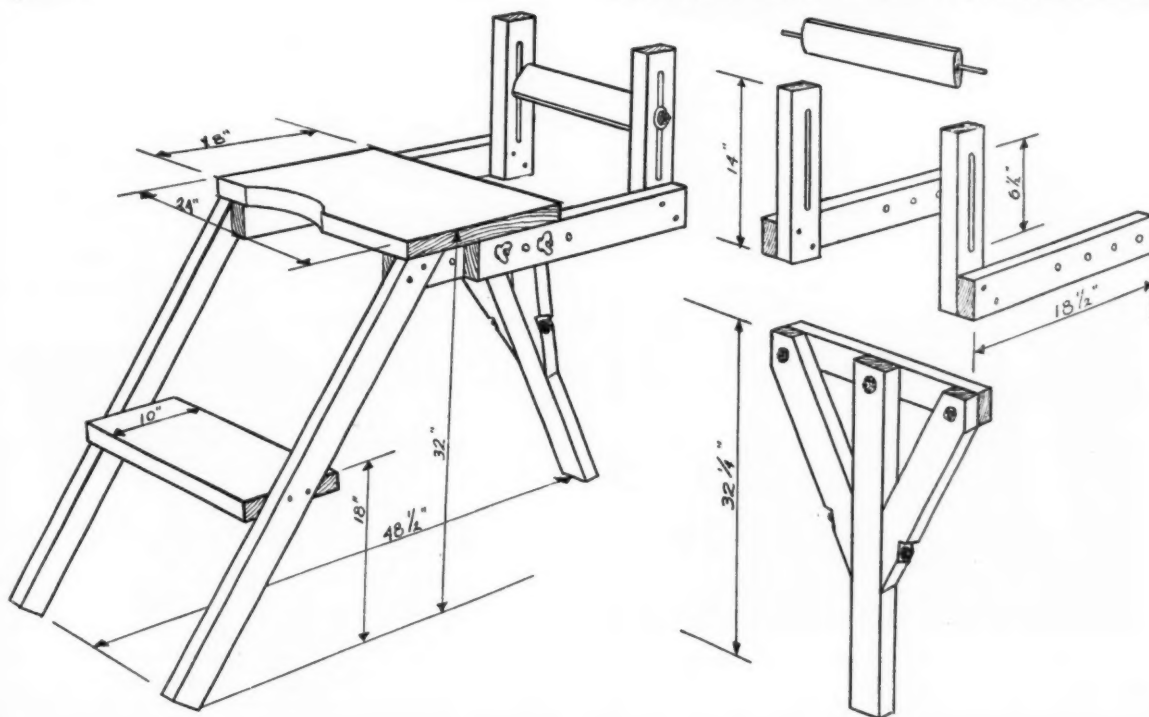
We feel that any time and thought devoted to this subject is well spent, because the bench rest is superior to the machine rest when properly employed by a trained rest-shooter. It does not, at all, restrict the normal recoil and jump of the rifle, and it does not interfere with the normal barrel vibrations as does the usual machine-rest clamp. Furthermore, those bench rests which are arranged for a left-hand support, and thus avoid barrel or forestock contact, do not change the normal method of holding, and a normal zero results. In fact, a sporting rifle (and even a target rifle, with taut sling) can be sighted-in with confidence on our type of bench rest for field work or range shooting. For one example, our heavy-barrel M-417 Stevens will do appreciably better prone than it will from machine rest, and still better from our bench rest. And, with a tight sling, we can use the prone zero.

In THE AMERICAN RIFLEMAN of January 1937 there appeared on page 31 an excellent view of the portable rest used by that master bench-shooter, the late C. W. Rowland. His was a long bench with four legs and a muzzle rest, but without a seat. Mr. Rowland used an auxiliary seat in the form of a stool or common chair. In the February Dope Bag that same year we pictured and described the Jacob Luoma portable table rest, which had four legs, a left-hand rest and an incorporated seat. The legs folded for car transportation. The complete weight was 40 pounds.

In the same article we pictured and described our own portable bench rest which has three legs to give a tripod support on rough or uneven ground. Instead of folding conveniently, the legs come off in two units by removing a total of four bolts. This arrangement is less convenient, but it is not unduly slow, and it does improve the rigidity of the rest. The height of the bench-rest table is 32"; height of seat, 18"; distance between bottom of front and rear legs, 48 1/2". Our pattern has been generally adopted by other shooters, but a greater number have requested further details and additional information as to its exact construction. We are compelled to prepare this miscellany on the subject, because we have received so many requests for dope on this portable bench rest. Our purpose here is to supply such definite details in the form of dimensional sketches, and to add descriptions of other portable bench rests as suggestions inspirational to new ideas.

All rests mentioned above are made of wood. Our own rest (pictured below) has a thick pine top with oak legs and braces and rifle-rest, plus long wood screws, bolts, and lag bolts as listed elsewhere in this screed. There are other portable bench rests made of metal, including iron and aluminum alloys. One used by Dr. Dalton Richardson of Austin, Texas, has sockets for three removable pipe legs and two rifle-support pipes on top. This leaves only the flat top and the legs for packing. He uses an auxiliary stool seat similarly assembled. A unique feature is the cross-strap rifle-rest hung fairly taut between the two support posts. A row of three sockets on opposite edges of the table provide ample forward adjustment for a comfortable position. See the photographs.

Another metal rest was designed by Mr. E. A. Hagan, of Butler, Pa. He made wood patterns of all major parts, and had them cast of aluminum. The three substantial





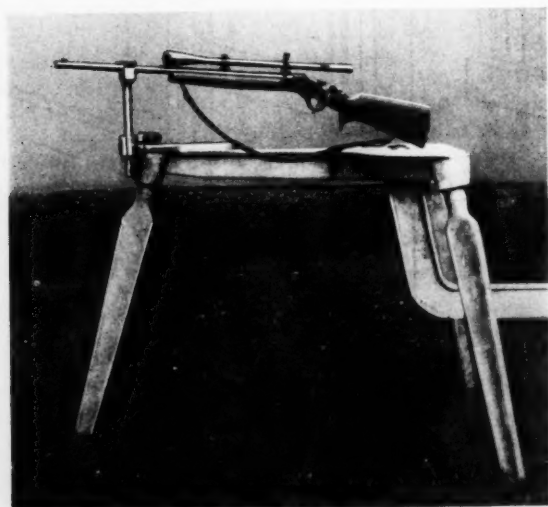
The Newcomb rest, commercially available

Dr. Richardson's shooting table holds all legs and posts



The Newcomb rest folded, with rear leg outside

The Richardson shooting table is large and roomy



E. A. Hagan's rest, made of aluminum



legs are tapered at the top and fit very firmly into tapered sockets which are a part of the table casting. The table is 30 inches wide and 38 inches long. It is T-shaped, only the first foot being full width. The top is very thin but is reinforced by 3½-inch supporting ribs ⅝-inch thick.

The legs are set at about a 15° angle and bring the top about a yard above the ground. This rest has a seat on a curved arm of I-beam section which is fastened flat against the bottom side of the table top by an 8-inch plate and two ⅝-inch brass studs, controlled by bronze hand wheels for convenient detachability. In front there is a "V"-rest for the rifle which has 10 inches forward adjustment and 10 inches vertical adjustment. Mr. Hagan states that it can be set up and ready "in a few seconds."

These metal rests are very heavy. Even this one, made of automobile crank-case aluminum, weighs 85 pounds. Each leg weighs 10 pounds, and the seat, 15 pounds. The table weighs 40 pounds. This weight could be reduced somewhat by using pure ingot aluminum. We have a more nearly skeletonized rest made of welded scrap iron, by H. S. Newcomb, of Vineland, N. J., which weighs less than the Hagan aluminum rest described above. Our own wooden rest is also heavy, probably unnecessarily so, and it weighs much more than the Hagan rest, or just 65 pounds.

The Newcomb portable bench rest has a wooden top shaped like an artist's palette and a padded soft-leather left-hand rest. The remainder is made of iron pipes and angle iron in an excellent design. The two front legs, strongly braced in a single unit, are hinged to the top in front. The rear leg fits in a clamp socket and holds a sliding

seat which is locked at any desired height or position with another clamp. It also has an adjustable scope stand. It does not weigh more than 45 pounds. Newcomb is now making one of aluminum and feels confident he can get the weight down to 30 pounds or less. This is the best portable bench rest we have seen, and the only one commercially available, as Newcomb will make them to order for about \$25.00 each. (See the photographs.)

The parts for our own portable bench rest were obtained in hardware stores and from the local millwork establishment, and were fitted and assembled by Barr. As finally assembled these parts were as follows: 1 piece (forearm rest, white pine or oak) 1¾" x 3½" x 19¾"; 1 piece (table top, white pine) 1½" x 18" x 24"; 1 piece (front leg, white oak) 1¾" x 3½" x 32¼"; 2 pieces (front leg braces, white oak) 1¾" x 2" x 22½"; 1 piece (front leg T, white oak) 1¾" x 3½" x 17"; 1 piece (front leg anchor beam, white oak) 1¾" x 3½" x 17"; 2 pieces (top supports, white oak) 1¾" x 3½" x 18"; 2 pieces (rear legs, white oak) 1¾" x 3½" x 39¼"; 1 piece (seat, white oak) 1¾" x 10" x 20¾"; 2 pieces (forearm supports, white oak) 1¾" x 3½" x 19"; 2 pieces (forearm uprights, white oak) 1¾" x 2½" x 14"; 2 pieces (top strips, white pine) 1" x 2" x 18"; 2 pieces (top strips, white pine) 1" x 2" x 24"; 4 bolts (front leg braces) ⅜" x 3½"; 2 bolts (front leg braces) ½" x 4½"; 2 bolts (rear legs) ½" x 4½"; 4 bolts (forearm supports) ½" x 4½"; 4 bolts (top supports) ½" x 4½"; 4 bolts (forearm) ¼" x 2½"; 2 lag bolts (forearm) ½" x 4½"; 4 wood screws for seat, 3" long; 1 bolt (front leg braces) ¼" x 5½". For assembly details and dimensions, see the sketch on page 9.

FRONTIER FIREARMS

(Continued from page 6)

lief among the hunters was that, in the factory-loaded cartridges, a very low grade of powder was being used.

If I ever made a success as a hunter, it was attained by seeing game before it saw me, whenever possible, then getting just as close to it as I could, and killing what I shot at. More game has been killed, in the old black-powder days, under a distance of one hundred yards, than ever was killed at a greater distance.

The first Henry rifle I ever owned was surely a good one. I could shoot the head off a rabbit with it, or kill as many wild turkeys as I wanted, at almost any time. There were hundreds of peccaries (musk hogs), as well as armadillos and members of the "big cat" family, in the jungles of southwest Texas then, and wild "razor-back" hogs and little white-tailed deer were plentiful for a hunter to practice on.

The buffalo herds did not range in the "brush" lands, but wild longhorn Spanish cattle by the thousands, did. These were as wild and hard to approach as any other wild beasts. No one suffered from lack of meat in that country, provided he was armed with bow and arrows, a good rifle, or a lance and rode a fast cow-horse.

The ordinary cow-hand, or Mexican *vaquero*, seldom owned a rifle or revolver then, as he was paid a wage of about four dollars per month (for the best of them), and had to furnish his own riding equipment and clothing. Every *vaquero* was armed with a good sheath knife or two, no matter how poor he was, and they all knew how to use them skillfully when working with rawhide, making their lassos or brush jackets, leggings, and tapaderas (stirrups covers) which protected them from the thorny brush which abounded, and in which they rode when capturing

wild cattle. After a day of hard riding they partook of a feast of fat, broiled beef ribs.

Hunting is still good in many parts of the West, but game is no longer as plentiful as in days of yore, and game laws now furnish very good protection for all wild life. In a few reserves the deer and antelope can still play without getting hung up on a barbed-wire fence. The high-power ammunition, rifles, and scopes give the hunter of 1938 an opportunity to aid in wiping out any wild animals not enclosed in parks, up to the limit the game laws permit.

My first lessons in still-hunting with a rifle came from old men with long experience in hunting with muzzle-loading rifles. My instructions were to kill instantly any animal I shot at, when possible. Badly wounded or crippled animals which escape from a hunter, can only endure prolonged suffering, or be torn to bits by the wolves, eagles, or other meat-eaters. A little thought given to this matter will convince the majority of hunters that, from the viewpoint of game conservation alone, good stalking and skillful shooting bring the best results.

A person who might qualify in every respect as a good shot or sharpshooter might not be a good game hunter, from lack of experience in hunting game in its native wilds, and its many ways, together with lack of knowledge pertaining to several branches of woodcraft.

There are, I am told, a few of the many who enjoy shooting today, even as a recreation, who prefer to hand-load their cartridge shells. When the first metallic cartridges were brought into the West, some of the old frontiersmen who did not take kindly to "new-fangled inventions of the devil," declared that they wanted to know "what they fed into" their muzzle-loading rifles.

SHOTGUN MANUFACTURE

The Smaller Metal Parts

By A. P. CURTIS

NOTE: An article "Walnut and Its Use in Gun Stocks" by this same author was published in our June, 1936 issue, and another, "Making Double Shotgun Barrels," in November, 1937. The present article completes the story of how double shotguns are made.—Ed.

THE FRAME, next to the barrels, is the most important part of a shotgun. It is the part which the barrels are fitted onto, and into which the locks, lock-tripping mechanism, locking-bolt, and safety mechanism are fitted, and to which the butt stock is attached.

We have two types of gun frame in America: the "lock-plate" and the so-called "box-frame," the latter type being the more popular in our later double-barrel shotguns—Over-and-Under as well as the orthodox type with barrels side by side.

The lock-plate type of concealed-hammer (erroneously called "hammerless") guns have their locks entirely or in part assembled on the inner surface of steel plates "let into" the right and left sides of the frames and stocks. In the case of some guns now no longer on the market, these lock plates acted as cover plates only, to cover and protect the locks and other mechanisms, and permit of easy access for cleaning and oiling.

We often read articles by visionary writers in which it is said that "lock plates were used, as they were more pleasing to the eye," or were "an aid to higher decoration, such as engraving, inlaying, etc." The cold fact is that the predecessor of all early hammerless guns was the hammer gun with its external hammers mounted on lock plates; and as a so-called hammerless action meant simply the changing of the hammers from the outside to the inside of these lock plates, our first arms were naturally of the lock-plate type. It was the easiest and most logical thing to do: change the location of the hammers from external to internal, and provide means for automatically cocking the locks. To-day only one domestic shotgun is of the lock-plate type—the L. C. Smith.

It is interesting to note that the "Fulton" double gun introduced in 1905 by the Hunter Arms Company, makers of the L. C. Smith gun, is a box-frame gun. Also of interest is it that many lock-plate-type hammerless guns—the Baker, Meriden, old-model Lefever, Union, Shattuck, etc.—are now off the market, and that the Iver Johnson double hammerless introduced in 1913 originally had cover (lock) plates, but was soon changed over to a box-frame type. D. M. Lefever, the father of the lock-plate hammerless gun in America (1878), made his last gun—the "D. M. Lefever," in box-frame type. Soon after this the J. Stevens Arms Company purchased the Crescent Arms Company and the Davis-Warner Arms Company (1930). The Crescent, a lock-plate type of double, was discontinued, and their present model, the Crescent-Davis, a box-frame double, was substituted. As the present vogue is for the box frame, this type only will be discussed here.

American manufacturers make their gun frames from either steel forgings or semi-steel or "malleable" castings, depending upon the price of the finished arm. Guns selling in the higher-priced brackets have their frames made from drop forgings (A, Figure 1), and the expense of drilling, milling, slotting, etc., to remove surplus metal from these solid lumps of hot-formed steel necessitates a higher selling

price for the gun than if the frame were cast around a "core," thus leaving a minimum amount of metal to be removed to make room for locks and other mechanisms (B, Figure 1).

The art of drop forging, or machine blacksmithing, was first developed in firearms construction in 1853, when Col. Samuel Colt used this method. "Drop forgings," or "forgings," are produced by forming the hot end of a bar of steel between dies recessed in duplication of the desired size and shape, these dies being made in pairs, with half the contour of the part to be made "sunk" into each die.

One die is firmly attached to the bed of a drop-forging hammer, the other, or mate, being fastened to the "ram" or "hammer"; and the successive blows of the hammer and its die compress the hot metal until it fills the depressions in both dies (Figure 2).

After the cut-off forging has cooled, the surplus metal, in the form of a "flash" or "fin," is removed by forcing the forging through a trimming die in a power press. After they have been pickled in a hot acid bath to remove any scale or oxidization from their surfaces, the forgings are ready for the several metal-removing and forming operations.

The moulds or forms for malleable castings are produced by means of a "gate" (Fig. 3) consisting of from 1 to 50 patterns (depending upon size, etc.), which is pressed into sand tightly rammed into mould boxes divided into two parts. After the impression or impressions are made, the upper mould box is taken away so as to permit removing the "gate" of patterns and inserting the "cores."

After the placing of the cores—which are made in core boxes (Fig. 4) in exact duplication of the cavities desired in the finished casting, the top mould box or "flask" is returned to its original position, and clamped in place. Then the hot alloyed metal is poured into the channels formed in the sand by the "gate" of patterns, until all spaces are filled. When cold, the castings (Fig. 5) are removed and the operation is repeated.

The castings, which are now in a very brittle condition, are broken away from the "sprues," and the ragged ends of the sprues are ground or "snagged" off on emery wheels. The castings are then annealed, or softened, in annealing pots, into which a small quantity of an oxide of iron, such as Hematite Ore, has been added. Under furnace heat, the oxygen in the ore absorbs the carbon in the castings, also converting the combined carbon into an amorphous, uncombined form. When the entire mass has been heated to between 1380° F. and the melting point (approximately 3000° F.), it is then permitted to cool slowly over a period of several days.

As to the initial cost of gun frames made out of castings, and those made from forgings, there is but little difference. The difference in cost of the many machining and metal removing operations of the two types is where the castings show a big saving.

With both castings and forgings, the exterior has to be machined all over, and approximately the same cost in drilling operations obtains in both cases; but the removal from

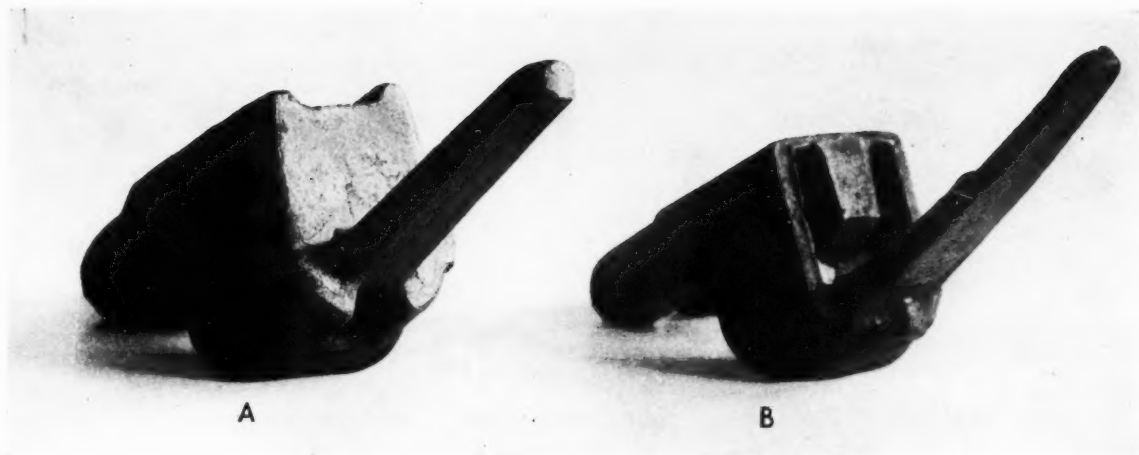


Fig. 1—A: Forged double-gun frame; B: Cast double-gun frame

Fig. 2—"Drop" or forging hammer in operation. Operator has hot end of steel bar placed over impression in bottom die. The raised ram containing top die will drop onto heated metal when operator "trips" hammer, and force the metal into recesses in both dies. Bar is then moved over to finish-size impression, where hammer blows forge it to finished contour. Forged part is then cut off bar by cutters at side of dies, and process repeated, changing cold bar of steel for one that has been heated while operator was forging parts from first bar

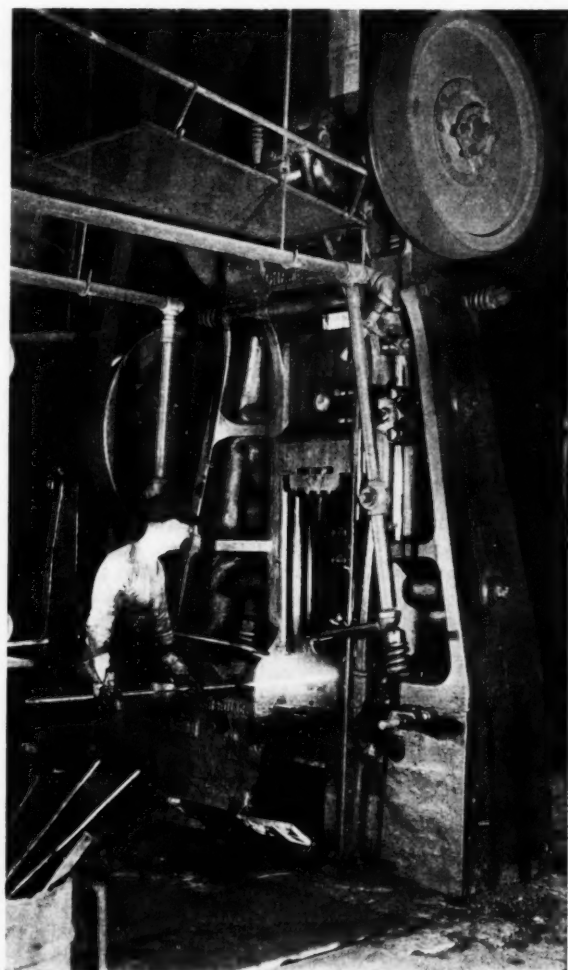


Fig. 3—"Gate" of 3 Marlin Over-Under shotgun-frame patterns, with cores in place

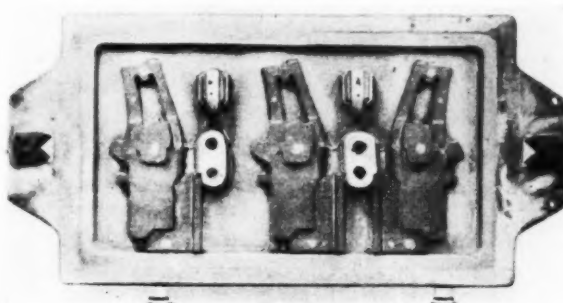


Fig. 4—Core box and cores

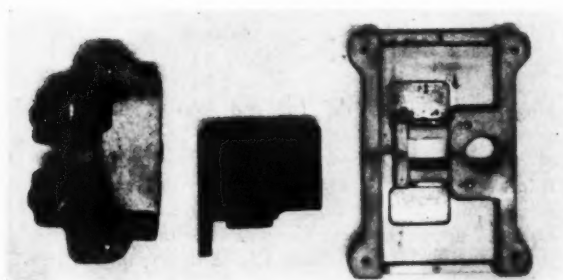
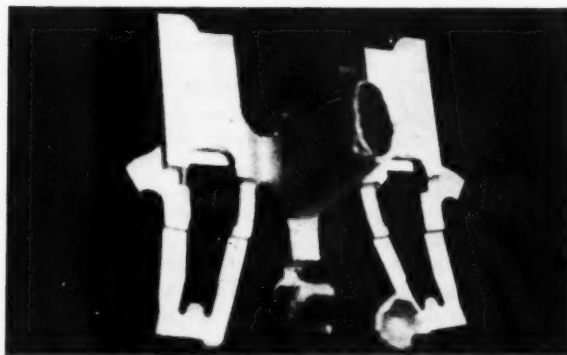


Fig. 5—Two Marlin O.-U. shotgun frames as removed from the sand, before separation and annealing



These three pictures courtesy The Eastern Malleable Iron Co.

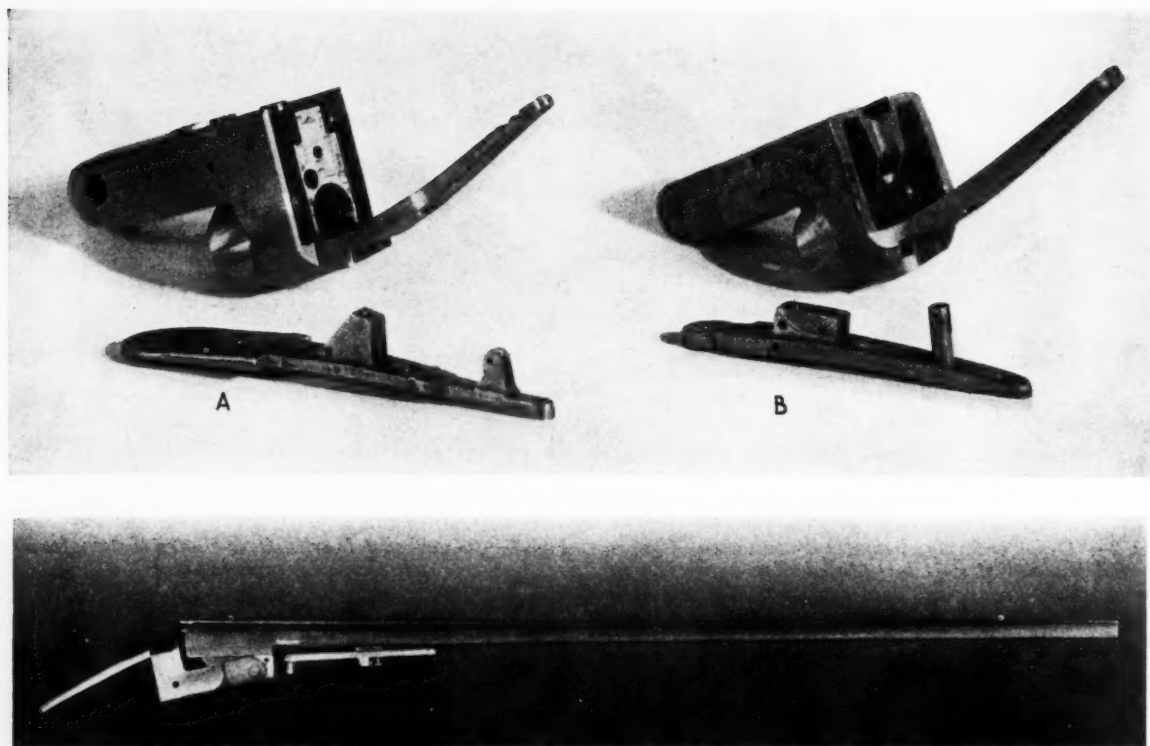


Fig. 6 (Upper)—A: Forged frame and trigger plate finish-machined; B: Semi-steel cast frame and trigger plate. Fig. 7 (Lower)—Frame, barrel, and fore-end iron fitted together

the forgings of metal for the reception of the various operating mechanisms, is what runs into important money—that eventually has to be paid by the purchaser (A Figure 6). The elimination of these costly operations by the use of castings with the various recesses and cavities moulded in, is what makes possible a lower cost price for guns whose frames, fore-end irons, trigger plates, trigger guards, etc., are made from castings (B Figure 6).

After a frame has been fitted to a pair of barrels, and the hinge-pin installed, the fore-end iron is fitted to the assembled barrel and frame (Figure 7). This "Jointing" or "Action-Fitting" operation constitutes one of the several trades or specialized operations necessary in the manufacture of shotguns. It is a bench or hand-filing and fitting operation, and upon the proper union of these main units depends the smooth working and long life of the completed arm.

Physical Properties of Forgings and Malleable Castings

Materials	* Tensile Strength in Pounds	** Yield Point in Pounds	*** Elongation Percentage
Forging Steel	55,000 to 65,000	33,000 to 38,000	25-30%
Type 4 Malleable of Today	70,000 to 85,000	60,000 to 75,000	5-10%
Malleable Iron 70 Years Ago	30,000 to 35,000	28,000 to 30,000	7- 8%

* Tensile Strength indicates the strength and ductility of metal when subjected to a steady, slowly increasing, applied load.

** Yield Point indicates the load necessary to cause deformation of original structure.

*** Elongation indicates the per cent of increase in length of a test specimen of metal, under tension, after a rupture has commenced and before the piece finally fractures.

Next, the front stock or fore-end is fitted to the fore-end iron, and this assembly is then fitted to the frame and barrel. Then the back stock or butt-stock is fitted to the frame, and the screws installed.

The wood for both the front and back stocks, having first been sawed out to patterns, and then turned (A Figure 8) and inletted for the reception of the fore-end iron or frame tang and trigger plate (B Figure 8) is ready to be fitted by hand to the metal parts. All inletting cuts on wood are purposely left a trifle smaller than the steel parts they are to receive, to allow for close hand-fitting, and the front and back stocks are turned slightly larger than finished size so that the workman can remove all machine marks.

Some factories polish the fore-end iron with its fore-end attached, and the frame, trigger plate, and trigger guard are polished with the butt-stock attached, thus preventing the wood at the joints from being above the surface of the metal in the finished arm; for the polishing of the metal parts leaves them a trifle smaller, while the varnish or lacquer finish on the wood slightly increases the size of the latter.

Metal Finishing

After separating the metal parts from the front and back stocks, the trigger plate is again attached to the frame, using the same screws that were installed at the time the stocks were fitted. As all the major parts have been assigned and stamped with a serial number, the assembling of the correct units in the finished gun, as well as during processing, is assured.

A top lever is then installed in the frame and trigger-plate assembly, and stamped with the same serial number; and this assembly, together with the fore-end iron, trigger guard, and barrels, is ready for the final polishing of all surfaces not finish-polished at the time the stocks were attached. The coarser-grained emery polishing wheels are used first, each succeeding "going-over" being with a finer-grained wheel than the last, as in the match-polishing with stocks attached.

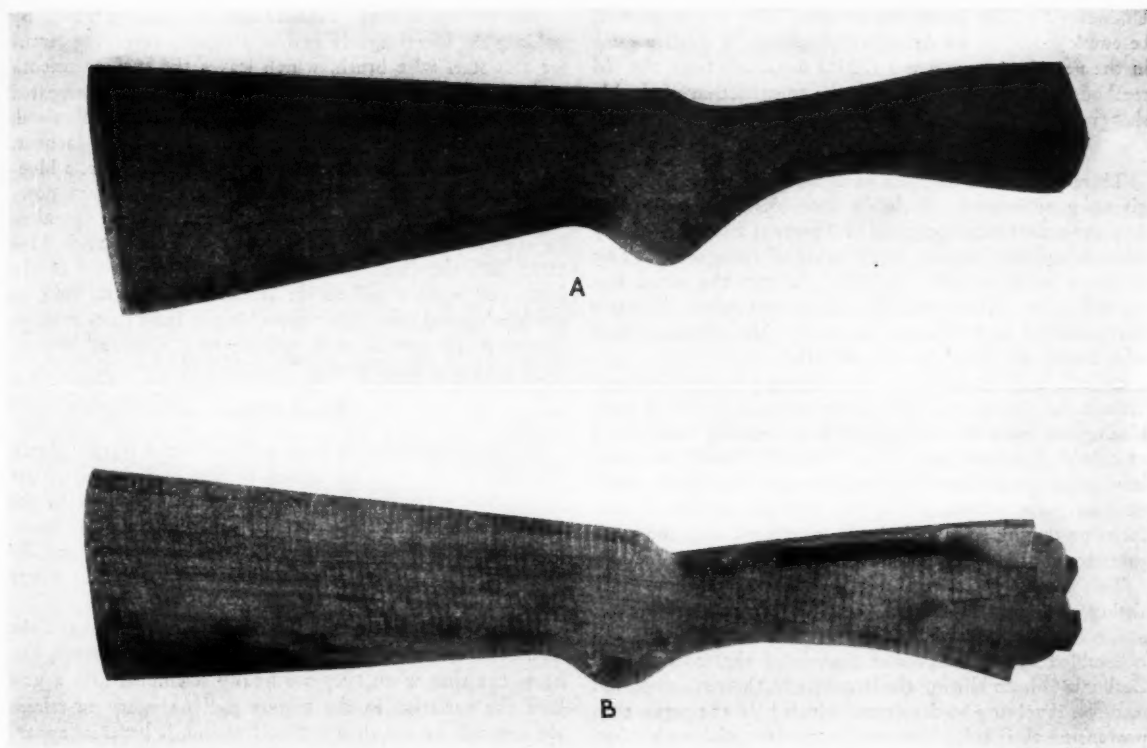


Fig. 8—A: O.-U. shotgun buttstock, turned; B: Same stock machined for reception of frame tangs, etc.

In the lower-grade popular-priced guns, all these several polishing operations are done by holding the work against rapidly revolving polishing wheels. These have peripheries of different widths and contours, charged with emery of various grits or grain-sizes, held in place by a coating of glue. The parts are first gone over with coarser grits, a finer grain being employed for each succeeding operation.

In wheel-polishing it is necessary to go over the exposed surfaces several times until they are free from tool or file marks, and a high polish results. This is another highly specialized operation, for not only must a highly polished, smooth finish be the final result, but the operator must leave the general shape and sharp corners as they originally were. He must exercise great care in matching that portion of the metal parts that was polished with the wood in place. The matching of the wood and metal in these plain guns is accomplished by wheel-polishing the wood and abutting steel with the stocks attached, as described. The barrels are also polished lengthwise, either by the use of polishing wheels, or by hand, depending upon the grade of the gun.

Case or Pack-Hardening

The next step is to case-harden the frame and other small parts, a heat-treatment that carbonizes the surface, turning it into a steel of sufficient carbon content to give not only a glass-hard surface when quenched in agitated cold water, but a riot of several shades of blue and brown colors that present a beautiful mottled effect, enhancing the appearance of the finished gun.

This step is accomplished by packing the parts in crucibles with a 50-50 mixture of powdered charcoal and charred granulated bone. The crucible and its contents are then brought up to a temperature of from 1800° to 1850° F. in suitable ovens, when the entire contents of the crucible are dumped into cold, agitated water. In the case of the better-grade arms, the parts are given this treatment after

being hand-polished, engraved, or otherwise decorated. The blue coloring of case-hardened steel can be enhanced by packing the parts in the following mixture:

10 parts	charred bone meal (animal charcoal);
6 "	wood charcoal (vegetable charcoal);
1 "	powdered cyanide of potassium.

Cyanide Baths

Some of our factories obtain the same results in their frames, trigger-plates, etc., by immersing them in cyanide salts heated to from 1500° to 1600° F., and as soon as the steel's temperature reaches that of the salts, they are quenched in cold agitated water, as in the pack-hardening method. These cyanide-salt baths are composed of either cyanide of potassium, chemically pure (96 to 98%), or cyanide-chloride, 75%. The coloring of parts treated with the former (potassium cyanide) is a more pronounced mixture of blue and brown than with the latter. Cyanide-chloride produces more of a mixture of brown and straw colors.

The Winchester Repeating Arms Company do no surface hardening by either of the above methods. They forge their frames, trigger-plates, and other parts from alloy steel, and heat-treat them before machining. This heat-treatment consists of heating and quenching, and then "drawing" or annealing by re-heating to from 1000° to 1100° F. This treatment increases the tensile strength of the metal nearly two-fold. At the same time it renders it soft and malleable enough to be drilled, machined, etc., for the reception of the lock parts and other mechanisms.

This is a new method of constructing guns in America, although used by some European gun-makers. This system of heat-treating before machining produces a nearer approach to the interchangeability of all parts than any before used. Any warping, shrinking, or expanding of the metal takes place before any of the machining cuts are made, which means only one action-fitting operation instead of two.

Undoubtedly alloy steel and its early heat-treatment will be employed by other American producers of quality guns in the near future, as it is a radical departure from the old methods, and a forward step in the construction of double shotguns.

Blueing Baths

There are several methods of blueing steel gun parts, all giving good results. Probably the oldest and most used employs a nitre bath composed of 9 parts of saltpeter (nitre) crystals and one part of black oxide of manganese. This is heated to from 800° to 900° F., and the metal immersed in it. After reaching the desired color, the parts are quenched in hot water to remove the solution, after which they are dipped into an oil bath.

Of late years several other bath-blueing processes have been introduced, all based upon the same principle as that of nitre blueing: an equal distribution of heat insuring uniformity of color. A process known as "Carbonia Finish" has come into quite general use for producing a blue-black finish on gun parts. Especially is this method popular in factories producing rifles and pistols, where not only the small parts are thus blued, but the barrels as well.

This process necessitates a special heating machine, consisting of a large gas-heated (700° F.) drum that revolves at not over 20 R. P. M., and in which the work to be blued is tumbled with a mixture of granulated charred bone and Carbonia Oil. In blueing the larger parts, there are employed fixtures, revolving in the drum, which hold the parts, thus preventing their being damaged by contact with each other.

Blackening or Blueing Barrels

The shotgun barrels, having been polished, are put through a pre-rusting process commonly known as "browning," although browning is a misnomer to-day. Years ago, when figured barrels—Damascus, Twist, Skelp, etc., made of steel and iron—were the vogue, these were finished a dark brown color, hence the term "browning," but with the advent of all-steel barrels a blue-black color became the standard in exterior finishing.

This "browning" is a pre-rusting process produced by the application of a chemical solution, that preserves the steel from later oxidation caused by the elements. In other words, since steel is subject to oxidation, why not anticipate the action of the elements by intentionally rusting the exposed surface with an even, uniform coating, and at the same time soften the glaring bright, sun-reflecting surface, thus adding to the appearance of the finished arm? This can be accomplished by the use of any one of a dozen different formulas.

After the bores of the barrels have been oiled, and in some cases tapered soft-wood plugs driven into both chambers and muzzles to prevent any chemicals from entering, the barrels are given a lime bath, or a wash with a solution of tetrachloride of carbon and gasoline, to remove all oil or grease from the exterior. Then a coating of the rusting solution is applied evenly over all exposed surfaces, using a small sponge. The reaction of the steel to the acid produces a brownish color, that changes to a blackish green as soon as the solution has dried out.

The barrels are next put into a compartment in which the air is humidified by means of live steam, and after from 5 to 10 minutes they have become covered with moisture. In evaporating, this precipitation leaves an evenly rusted surface. Then the barrels are boiled in a vat of clean water. This operation "sets" the rust, and the coating is changed from a rusty-red color to a blackish gray, caused by iron oxide deposits.

The surface is next "carded" and the oxide removed by holding the barrel lightly against a rapidly revolving circular soft-steel wire brush, which leaves the surface smooth and grayish-black in color. The rusting process is repeated several times until the desired blue-black color is obtained.

The parts are then oiled or covered with a metal lacquer, this super-rusting process leaving, to the naked eye, a blue-black smooth surface. However, if examined under a powerful magnifying instrument this surface will be found to be evenly covered with minute pits where the acids have eaten into the steel. Barrels are finally repolished in the bores and again fitted to the frame and fore-end iron, as the heating and subsequent quenching of these parts at times contracts the metal, thus necessitating a second action-fitting, called "hard-fitting."

Small Parts

All small operating parts, as well as frames, trigger plates, fore-end irons, etc., are milled to size and shape, master gauges being employed to insure interchangeability in the final assembling of the arm. In this work a great many work-holding fixtures and jaws, drill jigs, and specially shaped milling cutters are employed, with a master gauge for each metal-removing operation.

When one considers that the notch in a hammer and the nose of a sear, that are milled in separate departments, can be so cut that when they are finally assembled into a gun lock the variation in the trigger pull necessary to release the sear will be less than one-half pound, it becomes apparent that interchangeable parts for all of a gun's mechanism can be produced with proper equipment and supervision.

There are two types of milling machines used for fabricating steel gun units. Heavy-duty millers are used for the heavier cuts, and hand millers for the short, lighter cuts. Drill presses, slotting machines, broaching machines, and countless others, are also employed. The pins, screws, and similar parts are made from round cold-rolled steel bars on automatic screw machines.

After these smaller units have been drilled and machined, they are heat-treated to insure resistance to wear. They are then ready to be assembled into the frame with other major parts. If these parts are for special hand-made guns, they are purposely left larger than their gauges, so as to provide sufficient metal for the assembler to work off by hand with fine files while the parts are in the soft state, and with emery stones after the heat-treating, in the fitting of each part into its proper place. This produces as tight a fit as is consistent with free and smooth functioning.

Assembling

The assembling of all units into a complete gun is another highly specialized trade in gun-building. The major units—frames, fittings, barrels, and stocks—having been finished, they are delivered to the assembler. He, with the aid of the serial number impressed in each, selects the parts that were originally fitted together, and into them assembles all the operating mechanisms, oil-stone freeing when necessary. He adjusts trigger-pulls, tests striker blows, checks the centering of firing pins on the primers of the shells, and other details, until a smooth-working completed gun results.

Following this is the final inspection, including several firings to test the mechanism in actual use. Inspectors see that barrels pattern the same as when first targeted on a dummy stock and action.

The finished arm is now given its final or definitive proof test, cleaned, re-inspected, oiled, greased, and packed in an individual box, ready for shipment.

ON OFFHAND SHOOTING

By JOSEPH A. MILNER

ARE YOU ONE OF THOSE fellows who like shooting but have considerable trouble with their offhand scores? Wouldn't you like to be able to master this position? I have tried here to collect certain tips about offhand shooting from men who know how—tips that I believe will be of benefit to most of those shooters who have trouble with the standing position.

We can all be excellent offhand shooters if we remember that in order to build anything that is to endure we must begin with a solid foundation. In other words, we must first look to our *position*. Once we find the perfect offhand position, we must remember everything about that position, so that when we assume it a second time we will know immediately that it is right. We must practice position until the right position becomes a habit.

In developing a good position the shooter must bear in mind the following points: First, that he must be so "lined-up" on his target that the rifle when placed to the shoulder naturally points at the bullseye. There is enough strain on his muscles holding the gun aloft without adding other strains trying to push the muzzle to right or left because of bad position.

The next item we must watch is the way in which the rifle is held against the shoulder. I have found that nearly all good shooters do not use any "freak" position, but assign most of the holding to the left arm, using the thumb and finger as a crotch. The right arm is held high, and the butt of the rifle is pressed into the shoulder. The right elbow is raised considerably higher than the shoulder. This causes a hollow in the shoulder muscle which cradles the butt.

When we have developed a good stance, we must devote some time to making the bullet go where we want it to go. There are several stunts that will help us to do this. I assume that everyone will use the six-o'clock bullseye hold. When you shoot offhand again, try the following stunt—it has helped other offhand shooters, and it may help you: Assume a good position, well balanced and fairly steady. Look through your sights. Focus on the bullseye. Now breathe deeply. Watch your front sight rise and fall on the target. Notice how it is first under the bull and then over the bull, as you breathe. See how your breathing affects your sight picture? Controlling your breathing is of great importance. This is best done by taking one or two fairly deep breaths, and then, as the sights swing into position, holding a little less than a full breath of air. If you practice holding the breath you will be able to control the vertical rise and fall of your rifle.

When you have the up-and-down motion of your rifle under control, you are faced with the problem of regulating the motion from right to left. I have found, through analyzing the technique of several good shots, that they control this swing mainly through the prevention of body sway. They control body sway by swaying on the ankles—not from the hips! Try this. Notice that you have difficulty when you try to swing far from the vertical. Now swing from the hips, and notice how easy it is to sway far from the vertical. Concentration upon "ankle sway" will enable you to control your swing within a few inches. When you have the vertical and horizontal motion under control—and by control I mean that your swing does not exceed eight inches at 200 yards—you can devote the remainder of

the practice period to concentration upon trigger-squeeze.

No doubt, if you are serious about shooting, you have read volumes on trigger-squeezing. But reading will not help you unless you continually practice with your own rifle. When you are thoroughly familiar with the "feel" of your trigger, try the following stunt: If you are of average strength you will be able to hold a perfect sight picture for at least three seconds. *During those three seconds you must fire your rifle!* Sounds easy—it is easy. It is one of the trade secrets of fool-proof offhand shooting. This stunt is used by most of the best offhand shooters that I know. Through constant practice they are able to squeeze the trigger and fire the rifle within those three seconds when the sights are perfectly aligned; and the natural result is a perfect shot.

Nearly all good shots carry a stool or chair to the firing line. There is a good reason for this. The chair enables the shooter to rest *without changing position*. The first thing to do is pick a good position for the feet; then place the chair so that when you sit down the position of the feet does not change. This is important, because if you want your shots to go into the black, you must not allow the position to change once you have started to fire.

But, you will say, all this costs money. The average fellow cannot afford such expensive practice. But I say that the average fellow does not need a large bankroll to compete with the expensive shot. All he needs is the *time* to put into development of himself. Dry-shooting will enable anyone who will devote the *time* to it, to become an expert offhand shot. Fire the rifle just as if there were ammunition in it. Call your shot, remembering just how the sights looked when the rifle went off. Mark this in the score sheet, and at the end of a string, total up your score. This is the finest kind of practice. Each time you fire, concentrate upon getting off the shot while the sights are perfect. When you have developed the *habit* of firing only when the sights are perfect, you have developed the acme in offhand shooting. Bear in mind the fact that you are trying to improve your offhand shooting, *so don't kid yourself*. If you get a bad pull, mark it down on your score sheet. Find a position that lets the rifle lie naturally on a line with your target, so that every time you look through the sights you can see a perfect sight picture, without strain.

Try the breathing exercises until you have mastered them. Practice swinging from the ankles instead of from the hips. Put considerable time into this practice, so that it will become second nature for you to assume a correct position each time you raise the rifle to your shoulder. Remember the three-second trigger squeeze.

Practice until you are able to fire only when the sights are perfect. Break away from the habit of "letting the shot go." Work on a percentage basis. At 200 yards you have a 26-inch four-ring. Included in this 26-inch ring is a ten-inch black bullseye. If you can keep your shots inside of that 26-inch ring you are sure to get a few shots into the black. And with constant and careful practice there is no reason why you cannot put eight or ten shots into the black. Nothing is to be gained by rushing things. Take your time. Bad shooting habits are hard to break. Remember, if you are not honest with yourself you can form bad habits at dry practice, and ruin your progress

(Continued on page 31)

FROM ACROSS THE WATER

A Dope Bag Review

THE STOEGER ARMS CORPORATION has shipped down several 1938 items for our edification. One of these is a **.22-caliber insert** barrel for the 12-gauge shotgun, single-barrel or side-by-side double only. It is made by Sempert & Kreighoff, of Suhl. It is neatly finished and deeply blued. The barrel is about 5/16 inch in diameter, enlarged at the breech to fit a 12-gauge chamber. Two hardened screw-held insets on either side, and a wider one underneath, give a 3-point contact for proper chamber fit. The wide one is on a slope, and is wedged tight by a screw and special socket tool. It carries its own extractor, and there is a wide-and-flat-headed screw for adjusting headspace. The whole gadget is 8 inches long, and can be carried in the pocket or a sheath for use in a single-barrel shotgun. The mean groove diameter is .221-inch, with one turn in 14 inches.

It took but a minute or two to fit it properly in the right barrel of our Ithaca. It shot low left, but by holding the shotgun sights to compensate, I got my last group all in the 10-ring of the 50-foot pistol target at 50 feet. All four groups averaged less than an inch spread, using the .22 Long Rifle cartridge. It appears to be as dependable as a .22 pistol, with the shotgun sights. It would, of course, be better than a pistol for pot-meat purposes in the hands of untrained shooters.

Stoeger has added the **Ajack line of hunting scopes** imported from Germany. One sample was a 2½ x 52 (a relative light rating of 52). The clear objective is about ¾ inch, and the enlarged eye lens a full inch in diameter. The exit pupil is nearly 5/16 inch, or over 7-mm. The instrument is 10 inches long, with a tube diameter of 7/8 inch. There is an elevation turret, with a disc and thumb-screw lock, 2¼ inches from the front end and 6¼ inches from the eye end. At the rear there is a focusing collar with a screw lock. The focus can be made sharp at a few feet or to infinity. The standard reticule is a cross-wire, and a straight flat-top post which covers 2½ inches at 25 yards or 10 inches at 100 yards. The field is 38½ feet at 100 yards, the image being flat and bright, and clear to the edge. The definition and resolving power are average. The magnification appears to be fairly rated. Relief is just under 3 inches, with practically no latitude. The weight is 9 ounces.

The other Ajack sample is the **3 x 75**, which is similarly equipped but larger. The tube is 1.04-inch thick and the objective about 15/16 inch. The ocular is nearly 1¾ inches, and the exit pupil 5/16 inch, or over 8-mm. This one was 10¼ inches overall, and it weighed 11½ ounces. It has the same type of reticule, but the post covers nearly 3 inches at 25 yards and 11½ inches at 100 yards. The power seems to give 3 magnifications, exactly as rated. The definition is equal to that of the 2½ x 52, and the resolving power is very slightly better. The image is somewhat brighter but is not as flat, it appearing convex or round in the center of the field. The breadth of field is 40 feet at 100 yards. Relief latitude extends from 2½ to 3 inches. In good light, short of bright sunlight, the resolving power is capable of separating ½-minute contrasting objects (black and white). The smaller instrument does not quite equal that. This means that it can almost distinguish definitely ½-inch contrasty objects at 100 yards.

Both are good, practical sighting instruments, but I fail to find anything unusual about them, or any exceptional optical excellence. They are just average first-class instruments. They both require a mount with windage adjustment. The larger one should be used in the Redfield or Tilden type of adjustable bridge mount.

A 5-shot "MS-250-B" **Mauser .22-caliber target rifle** was also received from the Stoeger Arms Corporation. It is an interesting arm, with a good stock, good adjustable tang sight, and a set of quick-change front sights. The latter are of the caterpillar type and are pulled out towards the muzzle. A spring catch in front acts as a stop, making the interchange of sights most speedy.

There is also a special open sight on the barrel, which is fully adjustable. It is mounted in a special long dovetail cut in the top of the barrel, with nine numbered stations for choice of position, forward and back. A thumb-screw release frees it from the barrel. The tang sight, which costs \$11.00 extra, has a square post stem for its ¼-inch socket. It is locked and sight adjustments are made with a special wrench. The peep disc is very large, and odd-looking, but fine for aiming. No hooded apertures came with the outfit for target shooting. Using a square post, the various target loads grouped into about 2-3/16 inches at 100 yards. Airline gave one group in 1⅞ inches, and a smaller five-shot group. A full turn of the sight adjustments moved the center of impact about 3½ inches at 100 yards. The gun appeared to be quite accurate when we tried the Parker Hale optical sight on it. With Super Match, 21 of 23 shots grouped into 1.35 inches at 100 yards.

The action is interesting as it is almost a duplication in miniature of the Model 1898 Mauser action. It has the regular big-bore-bolt-action extractor, ejector, bolt-release, sleeve, and safety lever, and all this with a bolt diameter of only ½ inch and an overall length of 5½ inches. The receiver opening and the bolt travel both are 1-5/16 inches long. There is a cam slot in the receiver at the rear, and a camming lug on the bolt opposite the bolt handle. The latter also has a square seat in the receiver when closed. The camming motion moves the bolt 3/16 inch forward for snug breeching, or to the rear for unlocking and primary extraction.

The headspace proved snug on our .044-inch plug, which we think is ideal. The bolt feeds from the 5-shot clip-magazine without shaving the bullets. It ejects loaded cartridges positively and with some force. It throws them to the right and forward several feet. The trigger has a military take-up and a very fine and smooth 3-pound pull. The striker travels less than 5/16 inch.

The receiver is low and neat in outline. The top is undercut to form a long shallow male dovetail, which has a maximum diameter of .4375 inch, the same as that on the barrel. If it were narrower and deeper for American mounts it would be ideal. As is, it requires base blocks for our popular small-game scopes, but this fine Mauser still qualifies as the most attractive and desirable Sporter for the .22 Long Rifle cartridge that I have seen. It weighs 8¼ pounds without sights. The barrel sight weighs 3 ounces, and the tang sight over 4 ounces.

The straight-taper round barrel is 26½ inches long. It is 1.02 inches at the breech and .625 inch at the

muzzle. There are 6 grooves, with one turn in 18 inches. The groove diameter is .2235 inch. The deep-blue finish of metal parts and the lighter walnut of the fine stock make a pleasing contrast and lend an attractive appearance. The stock is nicely checkered and the forearm feels full in the hand without appearing clumsy. The sling swivels are small and neat, with loops for $\frac{7}{8}$ -inch slings. The pistol grip is neatly capped. The stock has too much drop for prone target work, but not too much for a sporter. This target model costs nearly \$90.00. There is a lighter and plainer version of it (MS-420-B) and also a $6\frac{1}{4}$ -pound repeater (MM-410-B), both of which cost twenty dollars less. Any of these, without metal sights but equipped with a small-game scope, would make a desirable .22 Sporter and are worthy of serious consideration by anyone seeking an ideal arm for this purpose.

This $8\frac{1}{4}$ -pound target-model could be pared down somewhat in the forestock for sporting use, or the $6\frac{1}{4}$ -

pound model could be restocked with a higher comb for scope use. The drop of the target-model buttstock is $7/16 \times 1-13/16$ inches, measured from the bore line. We did not have a favorable sight for properly exploring its match-shooting qualities, and we did not try it from prone with sling. The front sling swivel screws into a stud which is loosely and movably engaged in a peculiar recess in the bottom of the barrel.

The front guard screw is threaded into the barrel ring. The rear guard screw is threaded into the top tang of the receiver. There is a wood screw between these two, just ahead of the trigger guard. The magazine protrudes about $\frac{1}{4}$ inch below the guard, and is the only part which might be considered unsightly, although the pressed guard itself is not particularly attractive, nor in perfect harmony with the generally neat appearance of the arm. As a target arm this small-bore Mauser should be well adapted for four-position matches and especially for rapid-fire practice.

THE LIGHT SIDE-ARM

(Continued from page 7)

While hunting one day we ran onto one that immediately climbed to the top of a pin cherry tree. My partner hit him the first shot with the .32 Automatic, and he came down about half way, caught another hold, and started back up. He did the same thing three times. After the third try, I shot the porky with a .45 S. A., and knocked him completely out of the tree but failed to kill him. He had started up the tree again, when I finally killed him with a head shot. I recount this incident just to show the tenacity of this type of animal. Jacks are somewhat similar, and take a lot of killing unless hit with well-placed shots of a caliber sufficiently large to cause a rapid hemorrhage. Head shots, of course, are effective, but the brain area of a porky is relatively small.

I recall visiting a friend who took care of a camp in northern Wisconsin. As I came into the clearing by the cabin I saw that he had a big porky up a tall poplar, and was circling around to try for a head shot with a .22 rifle. The porky, though, was in such a position that a head shot was impossible; so we decided to try my .45 S. & W. 1917. At the crack of the big revolver the porky let loose and came down. The ball entered the chest under the left front leg, and apparently came out right between the ears. We rolled him over and he certainly looked plenty dead. It took about five minutes to walk to the cabin for the spade, and we got back just in time to see the porky disappear into the brush. We had to run him down and shoot him again.

As mentioned before, this type of game requires good holding even with heavy calibers. The .22 R. F. is sadly inadequate in too many instances. It doesn't make you feel too good to hit a grouse, center, and see him fly off into a swamp where it would take a good bird dog to find him. These things all have happened to most of us, and could be eliminated in large part by using a more adequate small-game cartridge. The long-barreled Colt .32 has ample power for this kind of game, and will perform well on such game as jacks and porcupines. Larger game than this is seldom taken with a belt gun.

The cost of the pistol is comparatively low, considering the fine construction. The 6-inch barrel can be removed and the original barrel replaced, all without the use of tools save one small screwdriver used to lock the front sight back in the original position. All things considered, I believe this

to be the biggest 28 ounces of belt gun I ever carried. Fully loaded it holds nine rounds.

The .32 cartridges are easy to reload and extremely economical. These little hulls can be recharged at a cost of about one-half cent each. One pound of Bullseye pistol powder will load about 3,500 rounds, using a charge of 2 grains.

Few people bother to find the cases when shooting game. If I take the time I can nearly always find them, as this pistol is quite consistent in ejecting the fired cases to the right and a little to the rear and downward. A little practice, and you will know just about where to look for them. Most of the shooting, however, is usually done at some form of target, in which case it is a simple matter to spread a tarp or blanket where the cases fall, and retrieve practically all of them. The gun functions as well with cast bullets as with the factory metal-jacketed ones.

Reloading this cartridge has been quite thoroughly discussed in the aforementioned article by Mr. Wagar. It would be well worth anyone's time to look this article up and read it carefully.

At the time of this writing I am working on a new bullet for this fine little cartridge. While I have not had time, as yet, to test it sufficiently, it seems to have considerably more killing power than any other tried so far, although it destroys a little more meat than is absolutely necessary.

This gun fills the gap between the Woodsman and the Super .38 Automatic. It has proven the most useful of the three, and is the gun that goes with me on my next trip in the bush.

Summarizing, the gun is so light and compact that it can be carried comfortably, and scarcely noticed, yet it has sufficient size and muzzle weight to make hard and accurate holding possible. The cartridges are procurable almost anywhere, and are of such a convenient size that a goodly supply can readily be taken along. As to accuracy and functional reliability, the gun leaves little to be desired. Fully loaded it holds nine rounds, and it can be discharged with amazing rapidity. Should an occasion ever arise that necessitates its use in self defense, it will give a good account of itself.

The next time that the trail fever gets to a point where it is absolutely irresistible, pack this little gun along.

13-FIRST WALK-OVER

with *WINCHES*

TRADE MARK



TRIGGS



CARLSON



LACY



SON

Firsts at Ludlow, Mass., Haddonfield, N. J., Ros N. Y.

**All the Firsts and Other Scores
Listed on these Pages were
Made with Winchester EZXS**

Schweitzer and Triggs Set Records

DELAWARE TIDEWATER CHAMPIONSHIPS AT WILMINGTON JULY 22, 23, 24

THE rains that so unnecessarily soaked the Atlantic seaboard during the last week in July, together with the sufficiently high temperatures even had there been much less humidity, severely tempered the mettle of the shooters, but failed to mar their success with Winchester EZXS, in the Delaware Tidewater Small Bore Championships, sponsored by the Wilmington Marksmans Club. Except for three matches, a state championship—open only to Delaware shooters—every match was won with this ammunition—a walk-over of thirteen Firsts! On top of that, four new records were set.

As at Camp Ritchie, the outstanding winner was William Schweitzer, of Hillside, N. J. Next in the running was Ransford Triggs, of Madison, N. J., then young Francis Chidsey, of Wayne, N. J.—both also successful at Ritchie. And it was Schweitzer and Triggs who, despite the torrid conditions, gave the four extra demonstrations of the superior accuracy of Winchester EZXS.

WM. P. SCHWEITZER

- First, Grand Aggregate—1595 x 1600.
- First, 100-Yard International Target, Any Sights—386 x 400.
- First, International Target Match—391 x 400.
- First, 50-Meter Individual, Metallic Sights—400 x 400.
- First, 100-Meter Individual, Metallic Sights—398 x 400.
- First, Long Range Individual, Metallic Sights—199 x 200.
- Second in the Metallic Sights Dewar.

Schweitzer's scores in the Grand Aggregate and in the Long Range Match set two new club and state records.

RANSFORD D. TRIGGS

- First, 50-Meter Individual, Any Sights—395 x 400.
- First, 50-Yard Individual, Metallic Sights—400 x 400.
- First, Swiss Match, Metallic Sights—126 bulls.
- Second in each International Target Match.
- Second in the Any Sights Dewar.



GWILLIAM



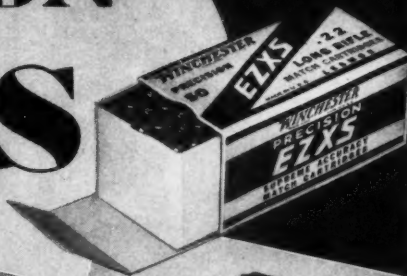
ROSS



CHIDSEY

WINCHESTER REPEAT ARM

AT WILMINGTON STER EZXS



JOHANEN



O'HARE



MASON

**ROSLYN, N. Y., Vandergrift, Pa., Chicago, Ill., Racine, Wis.
Set New Records in Wilmington Matches**

Wilmington's 400 in the 50-yard event set a new club record. In the match he shot in a steady downpour for nearly 1½ hours, yet set a new match record—for the Swiss Match at 200 yards, decimal metallic sights.

CINCIS CHIDSEY
First, Dewar Individual, Any Sights—398 x 400.
First, Dewar Individual, Metallic Sights—396 x 400.
Champion and three Thirds.

ROSS
First, Long Range Individual, Any Sights—199 x 200.
First!

WARD D. AIREY
First, Dewar Match, Restricted Class—396 x 400.
Mark Gwilliam, of Madison, N. J., was another conspicuous successful shooter, winning Second to Schweitzer in the Grand Aggregate, with 1584. He won Second in the Metallic Sights 50-Yard, and in each of the Dewar Matches, and three other Thirds. Third in the tough Swiss Match, Ancil Adams, of Madison, N. J., with 85. Roy V. High, of Union, N. J., was Second in the Long Range, and in the Any Sights 50-Meter. Mrs. High was high tyro in the Sights Long Range, Metallic Sights Dewar, Metallic Sights Long Range.

MOONFIELD, N. J., SUMMER CHAMPIONSHIPS, JULY 30-31
TRIGGS
First, Grand Aggregate—996 x 1000.
First, Metallic Sights Dewar—400 x 400-27Xs.
Second in Any Sights Dewar—399-29Xs.
P. SCHWEITZER
First, Two-Position Championship, 100 Yards—193 x 200.
Second in International Target Match, Any Sights—200 x 200.
and in the Metallic Sights Dewar was W. C. Kennedy—397-22Xs.
and William Waite, III, 397-19Xs. Also up among the high scorers Roy High and Sam Moore.

SECOND ANNUAL CONNECTICUT VALLEY TOURNAMENT LUDLOW, MASS., JULY 16-17

DAVE CARLSON
First, Connecticut Valley Dewar, Metallic Sights—398.
First, Aggregate of Matches 2, 3 and 4—990.
First, Kras Trophy, 50, 100 Yds., Metallic Sights—398.
First, Championship Aggregate Matches 6, 8, 9—983.
Second, Long Range Iron Sight Match—196.
Third, 50-Meter Iron Sight—248.

JACK LACY
First, Long Range, Metallic Sights—197.
Second, Aggregate of Matches 2, 3 and 4—988.
Second, Kras Match, 50, 100 Yds., Metallic Sights—398.
Third, Championship Aggregate of Matches 6, 8 and 9—982.

Ward Hunt and Henry Haase also showed up strongly in these matches, where the competition was anything but easy.

ROSLYN, N. Y., SUMMER CHAMPIONSHIPS, AUGUST 7
DAVE CARLSON—First, Metallic Sights Dewar—398 x 400-23Xs.
With E. J. DOYLE—First, Two-Man Team Match—396 x 400-20Xs.
TOM & JANET LEWIS—Second, Two-Man Team Match—395 x 400-21Xs.
QUINNIPIAC R. & R. CLUB TEAM—First in Four-Man Team Match—791 x 800.

VANDERGRIFT, PA., TOURNAMENT, JULY 23-24
DAVE CARLSON—First, Any Sights Dewar—400 x 400-34Xs.
FRANCIS O'HARE—First, Short Range Match—400 x 400-30Xs.
ERNEST PADE—Third in two matches.
With R. D. LAMBERT—Fourth in Two-Man Team Match—394 x 400.

BLACKHAWK TOURNAMENT, CHICAGO, ILL., JULY 23-24
LEW MASON
First, 50 Yards—399 x 400. First, Aggregate Match—793 x 800.
First, 100 Yards—397 x 400. First, Grand Aggregate—1590 x 1600.
Second, Any Sight Dewar—397 x 400.

RACINE, WIS., JULY 6-7
FRED JOHANSEN—First, Metallic Sights Dewar—399 x 400-25Xs.

ATIRMS COMPANY, NEW HAVEN, CONN., U. S. A.



Pictures by Author, taken in action and not posed, except one

THE EGG GOES DOGGING

By REX JEWETT

"MMMMMMMM" SAID THE EGG. "So all I have to do is to put those little lines on the Prairie Dog, and pull the trigger?"

"That's all," I replied. "Just hold the crosshairs wherever you want the bullet to hit."

"That seems easy enough," she commented, standing up and looking through the 6X at a Pooch about a hundred yards away. "That's not half as hard as shooting targets with those peep sights, and with shooting coats, gun-slings, and all that other junk that you make me wear. Now all I do is hold that little X on the dog, and pull the trigger."

As she did so my inward moan of despair at the thought of a hundred-yard shot offhand was cut short by the unmistakable plopping sound of a Prairie Dog departing heavenward. I clapped the binoculars to the spot the dog had occupied a moment before, and there he was, most of his inner workings scattered promiscuously about, and much too dead to kick.

"Now, Honey, that's no way to shoot Prairie Dogs," I expostulated, after recovering from the shock. "You have to get into your gun-sling, and lie prone, and shoot them as carefully as those targets you have been shooting at all month."

"Why?" she countered. "Didn't I just kill one this way? I don't see what difference it makes if I shoot them standing up or lying down, just as long as they get shot. Besides, I don't like to get

down flat on my tummy and root around in all that dust. There's sandburrs, too."

"But that isn't the *right* way," I patiently explained. "You *have* to use a sling and shoot prone, and look out for wind drift and trajectory and light direction, and all those things. I can show you articles by Whelen and Estey and practically everybody else that knows, and they all say that you have to shoot 'em like that. Gosh! if one of those fellows should happen to see you shooting Prairie Dogs offhand. . . . It's very nearly as bad as potting them with a shotgun. It just isn't done."

Completely unimpressed by my explanation, she stood peering around for more Poodles to pot. Seeing one about ten yards past the first, she pulled the gun up, and I heard her mutter "Put the X on the Prairie Dog, and pull the trigger. . . ."

And she did it, with the same results.

Again I endeavored to show her the error of her ways. I called upon Paul Estey, that dean of chuck-hunters; and Townsend Whelen, that peerless marksman and Prairie Dog exterminator. I even invoked the awe-inspiring names of N. H. Roberts and Harvey Donaldson; but to no avail. She remained completely unimpressed and unregenerate. Not only that, but she actually questioned me concerning these men who would show her how to shoot Prairie Dogs.



PRISMATIC BINOCULARS

An Analysis of Modern Binoculars

By MONROE H. GOODE

TO THE OUTDOORSMAN, the modern, prismatic binocular is almost indispensable—in fact, the value of the instrument in war or peace can hardly be exaggerated. Next to his rifle and ammunition, the binocular is the big-game hunter's most important single item of equipment, and it is almost as valuable to the small game hunter. The aviator, the navigator, the artilleryman, the infantryman, and even the ornithologist would be hopelessly handicapped without this scientific aid to nature's greatest gift. The binocular is put to its widest use at race tracks, prize rings, football stadiums, and boat courses. Coast guards, forest rangers, hunters, and all others who must see clearly at medium to long distances fully capitalize its great value.

The literal meaning of the word "binocular" is two-eyed vision; hence, we say that a binocular is an optical instrument with two tubes adapted to the use of both eyes simultaneously, regardless of the other features of its construction, and may signify either the old-style, Galilean field glass, now obsolete, or the modern, prismatic binocular. Likewise, the term "field glass" may signify either the ancient Galilean or the modern, prismatic binocular. There is a tendency of late, however, to apply the term "field glass" to Galilean instruments and "binocular" to the prismatic type.

The Galilean type is actually a double-barreled telescope, each tube of which has a more or less straight taper throughout and contains no prisms, merely the ordinary round lenses through which the light travels in a straight line from the front end of the tubes to the eyes. The field of view is very small, and while the definition is excellent in the center of this already narrow field, it becomes increasingly poor toward the edges. Galilean instruments are extremely bulky

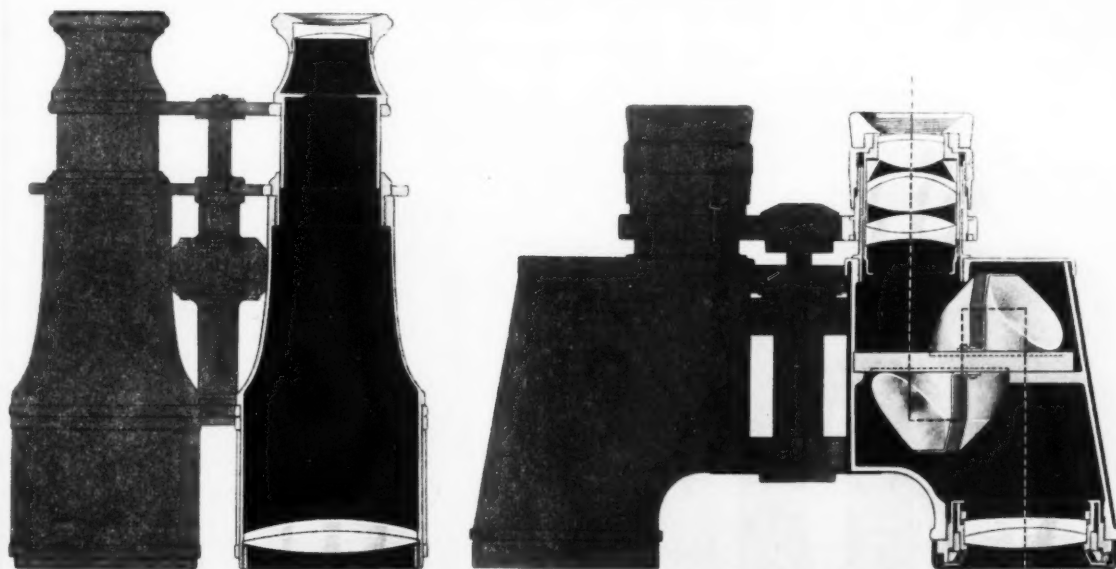
except in lowest powers. Cheapness and relatively high light transmission are the only assets of the obsolete Galilean field glass.

There are two types of prism binoculars, known as the Porro and Dialyt, both of which have two odd-shaped barrels. Each barrel in the Porro type has an enlargement on the outside called a "prism shell," which contains a series of prisms or mirrors set at opposing angles and, in addition thereto, a complete lens system. In the Hensoldt Dialyt type, roof prisms so arranged as to eliminate the usual offsets of the Porro type are employed, making these glasses resemble slightly the outside dimensions of Galilean instruments.

When light enters the prismatic binocular, either the Porro or the Dialyt, it is reflected from one prism or mirror to another until after traveling a comparatively long distance, it reaches the eye, traversing each prism and each lens en route. With the Galilean instrument, the observer looks directly through the two barrels, while in the prism type, the user looks at the image in the eyepieces, and without the prisms which refract or bend the light rays, he could see nothing owing to the offsets in the tubes, especially in the Porro type.

The loss of light due to reflection and absorption at the successive prism and lens surfaces is greater in the prismatic instrument than in the Galilean, which contains no prisms. This is inevitable. In the high quality instrument, the loss, however, can be safely discounted, and the tremendous advantages of prismatic instruments much more than offset this disadvantage. Improperly ground and poorly polished prisms, found in cheap prismatic binoculars, cause grayness of image, loss of detail, and distortion—far more deleterious to vision than is the loss of light. Such an inferior instru-

Left: Diagram showing construction of Galilean field glass. Right: Prismatic binocular (Bausch & Lomb). An example of sturdy, modern construction





Bausch & Lomb 6 x 30, individual-focusing

ment might slip by lax inspectors in a plant turning out shoddy instruments but never in a factory where approved methods of manufacture and rigid inspection prevailed. The disadvantage of the prismatic binocular lies in its far higher cost due to its complicated and superior construction.

Prisms are inserted in binoculars because they make possible the inclusion of highly desirable features that could not otherwise be secured:

(1) Prisms are used to erect the image so that a positive eyepiece may be used. The only eyepiece which, combined with an objective, will furnish an erect image is a negative one, such as used in Galilean glasses, and the eye cannot be placed in the exit pupil of a negative eyepiece since this exit pupil is virtual and not real. Therefore, the eye is placed as near it as possible but the effect is that of looking through a keyhole and the result is that the observer sees only a small field. On the other hand, in the prism binocular, the eye can be placed in the exit pupil of the eyepiece, which is positive, and therefore the observer can see a large field. The Galilean instrument cannot by any means be made to have the field of view of a prism binocular of equal power.

(2) Prisms afford a field of view more than twice that of Galilean glasses of equal power.

(3) Prisms enable the designer to set the objective

lenses farther apart than the eyes, and the results secured are comparable to the stereoscopic or plastic effect which would follow if the distance between the eyes were substantially increased. This stereoscopic or plastic effect is such that even rather distant objects stand out in solid contours or bold relief.

(4) Prisms permit either greater magnification in a glass of certain dimensions or about one-half the height and bulk of a Galilean instrument of similar power. Therefore, we see that prism binoculars offer compactness even in high powers, a quality impossible of attainment in the old Galilean type.

The hunter requires good resolving power, excellent brightness, superb definition, wide field of view, and stereoscopic effect, rather than high magnification. Trying to see more clearly by increasing the power is usually a delusion.

The objective lenses in a binocular are the large lenses in the front ends of the barrels, farthest from the eyes, and their effective diameter is usually expressed in millimeters. They are called *objective* lenses because they form a picture or image of the object on which the instrument is focused; that is, the object or thing seen in the field of view. The exit pupils are the small circles of light visible when looking through the eyepieces (ocular lenses) with the eyes held ten inches back from them and with the glass pointed at the sky. These circles of light are actual images of the objective lenses formed by the eyepieces and they lie at a definite distance from the emergent surface of the eyepiece. The eyepiece is nothing but a magnifier with which to look at the image formed by the objective.

The diameter of the exit pupil is a measure of the maximum amount of light that can be transmitted by the objective lenses to the eyes, and this diameter should be equivalent to the diameter of the objective lenses (expressed in millimeters) divided by the magnification of the binocular. In other words, the size of the exit pupil is controlled by the diameter of the objective lenses combined with the magnification, and the exit pupil can thus be varied by the manufacturer according to the requirements to be met. In prism binoculars the diameter of the exit pupil varies from about 2.5 mm. to 7.1 mm.

Binoculars are adjustable in three important respects: (1) The barrels swing on their hinges to provide adjustment for inter-pupillary distance between the user's eyes, which varies from about $2\frac{1}{8}$ to $2\frac{3}{4}$ inches, thereby enabling the

Hensoldt Dialyt Glasses

8 x 30	6 x 30	6 x 42 7 x 42	7 x 50 8 x 50	7 x 56 8 x 56 10 x 56
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observer to look through both barrels simultaneously regardless of the distance between his eyes. A scale is marked upon the hinge joint whereby the proper position, once found, may be noted and quickly restored. (2) The instrument may be adjusted to fit persons who possess eyes of unequal vision. And (3) binoculars are adjustable for various distances.

Two types of focusing devices are employed: center or twin focusing and individual eyepiece focusing. The center focusing device is adjusted by rotating the center wheel or by turning the center wheel in conjunction with rotating by hand the right eyepiece. When the vision of both eyes is equal, the adjustment is made for both eyes simultaneously by merely rotating the center wheel, and this permits quick focusing. In the individual eyepiece focusing type, each eyepiece is focused independently; hence, each type is adjustable to conform to the user who unfortunately possesses eyes of unequal vision. The individual eyepiece focusing type of binocular is preferred for scientific and military purposes due to superior construction, which renders it essentially dust and moisture proof, qualities never found in a center focusing instrument. Therefore, the former rather than the latter is adapted to use in desert country and the tropics.

Incidentally, the individual focusing type costs less, weighs less, is less likely to become sprung or broken, and is easily the first choice of informed big-game hunters who have learned that it does not have to be refocused as often as the center type. Once the proper settings on the scale are noted, binoculars with individual eyepiece focusing rarely need to be moved unless distance is changed or someone else uses the instrument.

In refocusing a binocular, always rack the eyepieces out beyond focus before raising the glass, and then upon bringing it to the eyes, reverse the movement and rotate slowly from left to right (i.e., from plus to minus) until the maximum sharpness of view is obtained, stopping immediately upon reaching this point. This method eliminates eyestrain. If prolonged observing results in headaches, this is an indication either that the focusing is done incorrectly or else that the instrument is defective.

Hunters should adjust the instrument for the average distance at which they will do their observing, and leave it right there. It is a typical beginner's trick to be constantly refocusing the glass; the veteran selects glasses with individual eyepiece focusing devices, adjusts them for his eyes and for the average distance of his observing, and rarely refocuses. In the wooded country, the glasses are adjusted for about 100 yards, while in the open country they are set for 250 to 300 yards. If an 8X instrument is adjusted for 250 or 300 yards, it will usually be found in fair focus from 75 yards to infinity. When game is spotted at great distance, the observer will generally have ample time to focus the glass with precision.

Magnification or power simply means that the object viewed through the instrument appears to be enlarged or brought nearer. With a 6-power (6X) glass, the object appears 6 times as large as when viewed with the naked eye, or the object viewed appears 6 times as near. Probably not to exceed 2% of the prism binoculars now being manufactured exceed 8X, leaving 98% to be divided between glasses of 6, 7, and 8 magnification.

It is impossible for the average person to hold with sufficient steadiness to reap the benefit of higher magnification in an instrument above 8X, and 7X is the highest that can be used to advantage in the unsupported standing position; however, an experienced observer rarely employs the unsupported standing position regardless of the power of his binoculars, but rests them on some object or at least rests

his back against a solid support if the observing must be done from the standing position. A trained rifleman, who usually has steadier nerves than the average person, can use a 9X or 10X instrument in the sitting position but this is the practical limit. Naturally, the higher the power, the more secure and stable must be the support of the instrument because the "power" of the glass not only magnifies the object observed but also any slight vibration or unsteadiness in the support. Incidentally, high power also magnifies haze or fog in the same proportion as it magnifies the object viewed.



Zeiss "Sportur"—6 x 24



Zeiss "Binocem"—7 x 50

The terms "orthoscopic" and "achromatic" are associated with optical instruments. An eyepiece or ocular lens is said to be orthoscopic if it has the property of giving an image in its correct or normal proportions, which means that the field is without distortion and as seen with the normal, unaided eye. A lens is said to be achromatic (color-free) when it has the quality of refracting light without decomposing it into its constituent colors; that is, giving images almost free from extraneous colors. If a color fringe appears around the edge of the field of view, the defect is known as "chromatic aberration" (uncorrected for color). The same idea is expressed if we say the lenses are non-achromatic.

The most important qualities in prism binoculars are: (1) resolving power, (2) definition, (3) light-gathering power, (4) light-transmitting power, (5) illumination or brightness, (6) width of field, (7) mechanical excellence, and (8) stereoscopic effect.

Resolving power is the ability of an optical instrument to distinguish fine details or render visible as separate lines, two or more lines separated by only a small space. In a binocular, resolving power concerns the capacity of the instrument to form an image in which fine detail in the object is reproduced in the image, and this is dependent upon one thing only, the diameter of the objective lenses—the large ones at the front of the tubes, although to be sure, an instrument can exhibit its theoretical resolving power only if the definition is good. The ability of an optical instrument to reach its theoretical resolving power depends, of course, on the excellence of its lenses. A poor lens will not exhibit resolving power equal to the theoretical value. Then, too, it may have the resolving power but the observer may not be able to see it; therefore, his inability to see detail has no bearing on the question of whether or not the lens has sufficient resolving power. Visibility of detail on distant objects is a matter of magnification and to make the detail visible some people with low visual acuity may require two or three times as much magnification as other people with high visual acuity. However, to get the full benefit of increased magnification, the diameter of the objective lenses and other dimensions of the glass must be increased proportionately. There is a secondary relationship that exists between resolving power and light-gathering power but the primary relationship is between resolving power and lens diameter.

The target shooter requires good resolving power in order to determine whether a slightly enlarged bullet hole in the target was made by one or two bullets—"a double" in the vernacular of the rifleman—and the deer hunter requires excellent resolving power to determine at a distance the number and length of points on the deer's head. Excellent lenses of large diameter do give us high resolving power, while even high quality lenses of small diameter can afford only low resolving power. A poor lens five inches in diameter will resolve much more than a perfect lens with a diameter of only two inches. There is no escape from the conclusion that we need large, high quality objective lenses in a binocular in order to secure good resolving power.

Effective diameter of the objective lenses determines the light-gathering power of an optical instrument just as it does the resolving power but, as indicated, the relationship is only secondary and they are different qualities. Light-gathering power is an index to the objective lens' ability to introduce light into the glass. Objective lenses receive the light from the object viewed, and form a real image so that normal eyes see, without accommodation, a magnified image of the object. The percentage of light received that reaches the eyes depends upon the light-transmitting power of the binocular, which is entirely different from the ability of the objective lenses to receive light, commonly called light-gathering power.

Light-transmitting power of a binocular is an index to the ability of the instrument to transmit to the eyes a large proportion of the light beam received by the objective lenses from the object. Even the finest instruments lose a part of this light due to reflection and absorption as the light rays traverse the glass. And again the prisms may be too small to refract all of the light received by the objective lenses. This loss of light varies with the quality of the optical system and the design and construction of the instrument.

The term "definition" concerns the ability of an optical instrument to form sharply defined images of an object and contrast between adjacent areas of varying relative brightness as nearly as practical to the actual contrast existing between those areas in the object inspected. In plain words, good definition signifies clearness and sharpness of objects in

the field of view. Excellent definition guarantees that black letters in a white background will appear jet black, and not gray, while in a lens affording poor definition such letters will have indistinct outlines and will usually be gray and fringed with color.

Definition is not dependent upon resolving power. A small lens with corresponding low resolving power can have excellent definition, and on the other hand, a large lens with correspondingly high resolving power may afford poor definition. Definition is dependent upon the quality of optical glass used in the lenses and prisms, the correction for its aberrations, if any, and upon the excellence of workmanship on the part of the designer and the factory in the manufacture, assembly, and adjustment of the instrument.

Human ingenuity has never perfected a binocular or scope that shows definition in the edge of the field equal in every respect to that of the center; however, in lenses of the finest quality, the definition around the edges will be very slightly inferior to that of the center, and the user may not be able to note any difference without instrumental aid. Glasses affording poor definition are hazy, cloudy, or milky even in the center and become increasingly so toward the edges, where the field may be entirely blurred. An instrument affording such poor definition is worthless, and its use in prolonged observation will be harmful to the eyes.

Brightness of image, illumination, luminosity, or clearness, whichever we choose to call it, depends upon both the light-gathering power and the light-transmitting power of the instrument. In the preceding paragraphs we learned that light-gathering power was dependent upon the effective diameter and quality of the objective lenses, and that light-transmitting power was dependent upon light transmission of the glass and the number of air surfaces and the general excellence of the optical system and mechanical features of the instrument, and we must never confuse these facts. Brightness, therefore, in the last analysis, is dependent upon the diameter and quality of the objective lenses, the quality, size, and design of the prisms, and the diameter of the exit pupil—the small shaft of light in each eyepiece.

The diameter of the objective lenses governs the amount of light introduced into the instrument and denotes the light-gathering power. High relative brightness, like resolving power, is lost with small objective lenses, and for this reason 6X and 8X glasses should have objective lenses of 30 mm. or more, depending on limitations placed on weight, bulk, and cost.

Once we succeed in getting ample light into the binocular through the medium of large objective lenses, the next problem is to transmit that light to the eyes; otherwise, we have accomplished nothing. As previously explained, the light reaches the eyes through the exit pupil, and the larger the exit pupil, up to a certain point, the greater the beam of light conveyed to the eyes, and the greater the relative brightness of the glass. Another advantage of a large exit pupil lies in the fact that it is easier and quicker to look through a large hole than a small one.

Any person can determine the correct size of exit pupil for the binocular provided he knows the diameter in millimeters of the objective lenses and the magnification. Simply divide the diameter in millimeters by the power. Take, for example, a 6 x 30 glass. Divide 30 by 6 and the quotient is 5. Therefore, the exit pupil of a 6 x 30 glass is 5 mm. in diameter provided there are no limiting apertures or diaphragms inside the instrument to prevent the entire beam of light from reaching the eyes, and provided also that the apertures in the prism shelves are large enough to transmit the beam of light in practically undiminished intensity.

(To be concluded)



Kearsarge grip on S. & W. .44. This grip's rear contour has somewhat the feel of the normal grip on the larger Colts

HANDGUN GRIPS

By ELLIOTT JONES

THE SLOGAN "Fits in the palm like the hand of a friend" was at one time used by a firearms manufacturer to describe its pocket pistol. This most excellent phrase possessed the novel implication that pistol shooters appreciated gun handles that would not only go into the palm, but fit there, as well. However, to make one standard gun stock fit each and every hand is an impossibility, as anyone who has shaken hands with more than one of his friends can attest. In fact, after a good round robin of hand shaking, one is apt to agree with the poets, who have dubbed the human mit everything from a clamshell bucket to a dead carp. To make a pocket pistol fit the hand is hardly important, but with the target gun it most certainly is. The grip is what joins the barrel (which makes a gun a gun) to the shooter, who wants to make that barrel perform according to his desires. For these many years the grip has been one of the weakest links in the chain connecting brain to target, because what good is barrel accuracy without good sights, and what good are the finest of sights if they cannot be held steadily? The difficulty of getting a decent grip (the "proper" grip) on a revolver has been recognized since the first shooting manual was a manuscript, but until comparatively recent times this problem has been approached from the wrong corner. Shooters were told to grip their guns thus and so, or to put the thumb here, or to press it there; and in so many words were told to adapt their hands to the gun instead of fitting the gun to the hand.

In making a decent pistol grip, the most important quality to be attained is comfort. If a grip has comfort it has everything, because it takes the sum total of all desirable features to make a grip feel "right". No man can tell another just what shape will suit him, but he can suggest that a grip which allows each finger, the thumb, and the palm to do its full share toward supporting the gun, is the kind of a grip he will probably like; and if he doesn't like it, he is very likely one of those names at the bottom of the scoreboard. There are all sorts of beliefs concerning the "proper" grasp to take on a pistol, and there is even one

cult which seems to try to keep as many fingers off of the gun as possible; but although the results of such aberrations are occasionally very fine, such experiments still constitute attempts to conform to the gun rather than vice versa. It seems pretty universally true that no matter where one goes, he finds the best scores being fired by those who have some sort of grip which is large enough to fill the hand, allow the middle finger to help support the gun, and give the thumb a rest or at least a chance. As a matter of fact, to our way of thinking, the thumb is still the most neglected member of the finger family. That is strange, too, for, what with cocking the gun, it does more than its share of work and still is given only a measly place to rest on the cylinder latch. If theory has any weight, the thumb ought to be given a good, solid, wooden resting place where it could amount to something, because it is the only part of the hand which exclusively controls the left side of the piece.

Certain hard boiled but uninformed men used to sing "sissy" at anyone so sensible as to object to punishment from the recoil of heavy caliber revolvers, but they failed to recognize certain facts. Anything that is punishment is hardly pleasure, and whereas a few cracks in the crotch of the hand on a hunting trip are piffling, the continued buffeting of target work is different. The pain from an ill-formed grip on a bucking gun leads not only to flinching, but to trembling as well, after the wrist and hand muscles become tired and "punch drunk". Recoil, of course, stays completely out of the .22 picture, but grip comfort is nevertheless extremely important, for all of the other reasons which make this link so vital. A relaxed hand that can effortlessly control the gun puts tens in the target much more easily and more often at the end of a shooting day than does a hand which has been fighting with sharp corners and empty spaces until it is cramped and weary. A hand which bears evenly and at the correct angle on a grip gives higher scores than one which has to clutch at a little handle, like a starling's foot on a wire.

There is only one handgun factory which recognizes the fact that human hands do differ, by furnishing interchange-



This and the two other pictures show Mr. Gagne checking a Roper grip

able and variously shaped grips for its revolver and pistol. This firm also leads the way to middle finger happiness by placing a spur abaft the trigger guard, that affords at least a rudimentary rest. The other firms have been reticent about making alterations which would acknowledge the cry for more grip comfort, and it would seem that they have lost out a little by their hesitance.

However, "It's an ill wind that blows no one some good," and what is now a sizable gale started as a gentle zephyr way back in the good old days when revolver shooting was just as tough, and hands were just as different, and gun handles were just the same. It was way back then, when every firing line found its guns growing wax and putty lumps—which were as cordially scorned then as now—that men found they could not shoot half as well without them.

The greatest impetus to special grips came shortly after the World War. The United States having been caught short by that fracas, had adopted the .45 revolvers as supplementary arms to the .45 automatic, so after the war was over and these revolvers were doing plowshare duty at Camp Perry, they were extensively used for qualification and match work. Many preferred these revolvers to the always difficult .45 auto. pistols except for one thing: their thin, sharp handles cut into the hand. And how they cut! You could locate the firing line by following the trails of gore that led back to the drug store after each match was over, and the return path was blazed by an endless litter of discarded adhesive tape tins. Shooters were smartening up and wrapping their grips with adhesive tape, but the rules committee frowned upon these tactics because they constituted an alteration of the guns, which were supposed to be fired "as issued," and an ultimatum was given which promised to make the blood flow again. Groans of despair went up from the shooters as they stripped off the aggregate miles of tape, but there was one team that saw a pinhole in the regulations. This team, under Roy Jones, the non-shooting director, put the tape on the

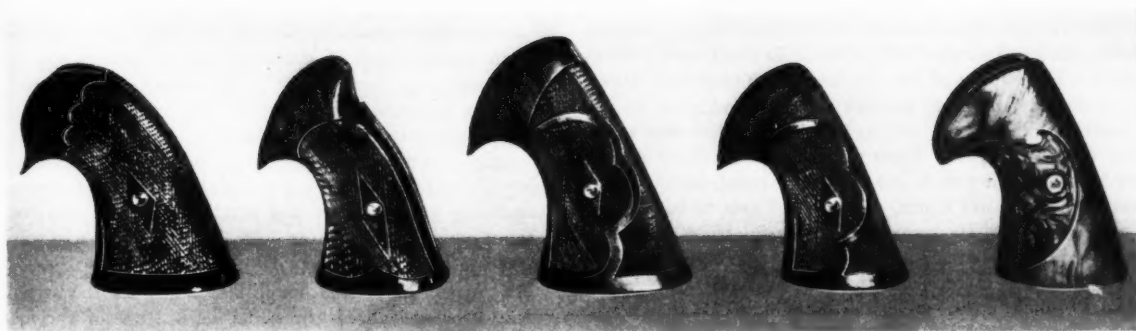
crotch of the hand instead of on the gun—and was everyone else piqued when they saw these boys take their hands out of their pockets!

From that time on, the demand for grips that would keep a jumping gun from biting the hand that fed it kept growing, and the little breeze grew with it. For years it kept veering in direction, and as the barometer dropped it blew in gusts toward Mount Vernon, Bridge Street, and way stations; but to attempt to list all the way stations and to imply that the velocity of the wind at each point is known, would be foolish. However, they say the anemometer out Pachmayr's way is revving up, and that's a good thing, too, because the Pachmayr adapter, made as it is in three sizes, has done a lot toward making gunstocks fit fingers that used to grope emptily for a good grip. Although shooters all over the country were continually getting their fingers gummed up with sticky, home made fillers in order to gain a comfortable and secure grasp on their guns, it remained for this device and the Harrington & Richardson spur to fill the long-felt void. The Pachmayr filler, besides doing what its name implies, elongates the gripping surface and thus aids in pointing a gun instinctively; which is of advantage in rapid fire.

Though this type of addition to the standard grip helps the middle finger in finding a lodging on the gun handle, it leaves several things undone. The thumb is left to flap wildly in search of a mooring, and it does not broaden the backstrap where it kicks against the hand. Smith and Wesson, therefore, peeped out into the storm, and the mountain labored and brought forth a gadget which incorporated this principle along with some plates which slipped under the stocks and thereby broadened the grip all around, but the thumb still waved like the flag over the post office, especially so since by widening the grip it was forced farther than ever from its accustomed roost on the cylinder lock release. The Smith and Wesson "Magna" grips are a minor acknowledgment of the kind of recoil that caused the bull market on adhesive plaster during the post war days.

Use of the V chisel





Grips for different hands. Note that not only are the sizes quite different, but the contours and shapes as well. The grip on the right is a Kearsarge; the others are Roper grips, the one on the left being for the S. A. Colt

Among the larger producers of special pistol grips are Major Trull, Walter Roper, Kearsarge Woodcrafts, Passco, and others. The grips offered by these people adapt, in varying degrees, the one sized factory gun handle to the nation's hand, which comes in many sizes and shapes and with such peculiar quirks, habits, and preferences. That no factory could run a profitable production line catering to such variable demands is doubtless true, but if an improvement had been made, it might have been along the lines of the Passco grip, which is a rubber affair that comes in "large, medium, and small." Because it is made to such loose specifications, of course it cannot fit each type of hand like a custom made thimble, but it is large and offers a comfortable grip that minimizes recoil punishment. The rubber is soft enough to allow the jackknife artist to whittle away until he is satisfied, or until he has to buy another. Its price is not quite as cheap as its appearance.

Though each stock maker claims to have "scooped" his rivals in some important respect, the Kearsarge stock seems to be following the trend set by the Roper grips. It has this difference, however: it boasts of rough relief carving

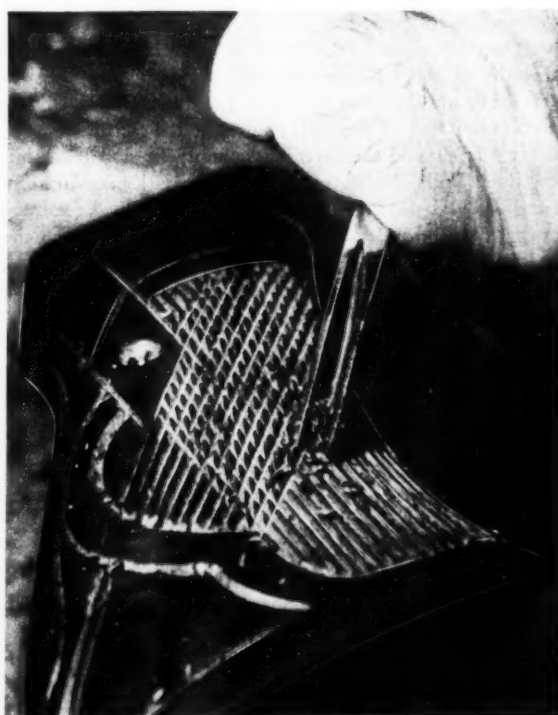
to serve as the anti-skid surface. They are exceedingly well made to a customer's specifications, and should become popular with those who like the stern end of a gun to look as if the bow end were appreciated. Their attractive and practical workmanship suggests that the man who carves them must be clever.

Besides selling all kinds of revolver grips and attachments, Major Trull also set his sails to the wind some years ago by coming out with a grip for the Woodsman which actually makes it quite possible for a human being to hold onto this gun by its butt. In fact this grip is so good that the Colt company offers virtually the same thing on their new Woodsman which made its debut at Camp Perry last summer. Whereas Joe Zwart of the Trull trust used to turn them out himself, the wind has blown in so many orders now that these stocks are produced by a special stock man.

The other, and probably the largest producer of custom made revolver grips, Walter Roper, also has them made by a specialized wood worker. Many have had the impression that Roper made the grips himself, but his stocks are merely a profitable side line. Roper maintains that he employs the finest stock maker in New England. Whether he is or not is a matter for better judgment than ours, but he is sure a long way from being the worst. Mr. Gagne is the old French artisan's name, and he and his son have time for little else besides pistol grips, so rushed are they with orders. One corner of their shop contains a ten-foot stack of weathered lumber waiting for the saw, and though the sawdust flies and the lumber pile shrinks, they never catch up on the orders. Lest one should wonder why two men working under forced draft cannot turn them out faster, and lest some should doubt that a little thing like a grip is tough to make, let us follow the thing through from order blank to shipping blank. First, some guy writes in, "W. F. R., Dear Sir, Hey, I wanna paira grips. Yours truly, Guy." The author of this article cannot sham a truly Roper letter, partly because he never ordered a pair of grips, but the reply to that one would probably run somewhat like this: "My Dear Mr. Guy, If you would be so kind as to let us know for what gun you wish a grip, and would draw us an outline of your hand (the one you shoot with), we will make you up a pair promptly."

When the drawing comes, Roper draws a design for Mr. Gagne to follow in making a grip for this Guy, and the pattern is taken to the shop in Westfield. A slab of circassian walnut or other specified wood is outlined in pencil with the general profile of a grip, and this section cut out on the band saw, after which it is cut lengthwise into two halves which are to form the two sides of a grip for all guns but the H. & R. To insure the two halves fitting together

A close-up of the V chisel in action



tightly at their edges when finally fitted to the gun, they are held against a sand wheel which looks like a buzz saw without teeth. The outline of the gun handle frame is now drawn in pencil on the inner parallel surfaces, and they are inletted roughly on the routing machine. That step is the last of the easy part. From there on every process is done by hand. From a rack holding every conceivable type of revolver and pistol frame, the make of gun to be fitted is taken down and the remainder of the inletting completed with a chisel to make a tight fit on the gun. A tight fit is important, as anyone who has had a stock start going "snick—click, snick—click" in the middle of a match will bear witness. After having been inletted, the two halves are bored for the screw holes, and then each is fastened through these holes to a larger piece of wood to facilitate handling in the ensuing operations of shaping and checking the exterior surfaces. The shaping is done with a file until it approximates the outline of the hand or specifications accompanying the order, and then sandpapered the rest of the way. The sandpapering operation alone takes about one hour. All of these operations are done by either Mr. Gagne or his son, but the most delicate detail is left for the skilled and artistic touch of the older man. Perhaps putting a checker design in a hunk of wood seems a prosaic thing to the uninitiated. Perhaps it seems like a trifling detail to those who are familiar with wholesale factory methods and kits of mail-order checking tools; but Mr. Gagne's finely cut pyramids and pleasing patterns are superior to those of a hungry-mawed machine. Though the actual scoring value of a Roper grip is, of course, no greater than that of any other properly fitted combination, be it any of the other fine grips on the market or be it a home-made hunk of boxwood, Gagne's work appeals to those whom the advertising world likes to call "discriminating". This is

all due to the artistic adeptness of this man. To watch his smooth manipulation of the checking tool makes one involuntarily gasp "Craftsman!" Nor does he use the ordinary type of double-pointed tool. He has a set, yes, but he says they just don't suit him. Astonishingly enough, he employs no more than a V-shaped chisel, and by guiding this with his left and tapping it with his right hand, he executes those gentle curves and parallel lines with the easy certainty of a figure skater. He is indeed an artist, and Roper is a lucky guy.

As a matter of fact, although Roper was not the first to get into the specialized-grip game, he was one of the first to feel that wind puffing around in the early days. He was at Perry when the .45 revolvers were assaulting the shooters, and about that time he whittled out a stock for his Smith pistol which he says was the forerunner of his present line. Roper's grips, and the way they are made, illustrate what is happening in many places, and what is in effect an about face of the pistol shooter in approaching the problem of holding on to his gun in the best and most pleasant way. The factories forced the specialized-gunstock business into being, and we buyers as well as the sellers should be thankful that the situation has been solved with such attractive articles as the Kearsarge, Trull, and Roper offerings. There is just as much shooting comfort in a can of plastic wood for two bits, of course, but the esthetic side of a nature should be indulged upon occasion, too, even if it is only the finer sensibilities of a lowly pistol shooter which are involved. Whether it would "fit in the palm like the hand of a friend" or lie there like an old sock full of butter, who would not like to shake the mauled hand of that first .45 shooter who objected to being snapped at by a vicious backstrap when he was just trying to have a good time?

THE EGG GOES DOGGING

(Continued from page 22)

Shocked by such blasphemy, I made up my mind one member of our family would shoot Sod Poodles in the way they were supposed to be shot. So I slipped into my sling, disposed my length upon the ground, and drew down on a large and imposing Poodle. I estimated the range, gauged the wind, noted the direction of the light, and then touched her off. The Poodle blew out at the seams with an impressive "Pop," and I turned to the Egg with justifiable pride, expecting to receive her congratulations upon killing a Prairie Dog in the orthodox and time-honored manner.

Did I receive the congratulations and plaudits? I did not. What I did receive was a suggestion that I get up out of the dust and pick the burrs out of my clothes, while she shot Prairie Dogs.

Dazedly I watched her shoot Prairie Pooches at ranges of from 76 to 152 yards; shoot them offhand, and twice kneeling. Watched Poodles that by all the laws of shooting should be alive and laughing at such ridiculous goings-on, depart from this earth and stand not upon the order of their going. I watched her shoot sixteen dogs with eighteen shots, and not a wounded one in the lot. Watched her shoot with the wind and against it, crosswise and quartering. Watched her shoot from all possible and impossible positions; leaning, twisted, and plain spraddled. In short, I watched her shoot both Prairie Dogs and all my pet theories and taboos, to pieces, at one and the same time.

After the devastation and carnage was over, and the guns safely stowed away, we drove homeward. My mind was seething with thoughts of the surprise that I had in store for

a couple of nail-driving friends. I envisioned them in all their glory of shooting coats, gun-slings, padded knee breeches, etc., etc. I chuckled with unholy glee at the thought of them ponderously and solemnly adjusting all this junk, and then just as solemnly and ponderously shooting Prairie Dogs. I mentally exulted at the picture of them doing all this and then standing glumly by and watching the Egg calmly duplicate their feats of marksmanship, offhand, with no fuss or blare of trumpets. It had even occurred to me that I might wangle up a slight wager on the outcome, and I chortled with suppressed mirth at the thought of the sour expressions I would see when the stakes were paid into my waiting fingers.

I would arrange a shoot for next Sunday. I would see these hard-boiled bullseye-punchers tonight, slyly inveigle them into boasts of their prowess, and then insist upon a demonstration. Then I would laugh raucously and loudly in their faces when the showdown came!

With these thoughts in mind, I broached the matter to the Egg. "No," she said, "I don't think that I'll shoot Prairie Dogs any more."

"What?" I howled. "After the way you popped them off this afternoon, and then not shoot any more?"

"Well," she said, "after shooting at those little black bullseyes all month, and not hitting them very often, I can't see much fun in this. It's just too easy to be any fun. I think I'll shoot targets next Sunday."

And darn it, she did!

MORE ON MUSKETRY

LAST MONTH we pointed out that the British, from whom some of our American Army Officers seem to have copied most of their ideas, have again decided that individual marksmanship has a very definite place in the scheme of national defense in the training of the infantryman.

The following interesting article giving additional information concerning the British plans and reasons therefor is quoted from *The London Times* of Friday, June 24th. Under the heading "Stalking and Sniping" *The Times* says:

"In small arms training next year the light automatic—the Bren gun—will be regarded as the major weapon of the rifle battalions. Every soldier in these battalions will be trained in its use. The Bren gun has proved an excellent all-purpose weapon and is ultimately to take the place of the Vickers gun as the arm of the machine-gun battalions.

"This does not mean that the rifle is looked upon as useless or as a museum piece: *it is still essential, and selected riflemen are to be intensively trained for specialized work with the older weapon.* By the kindness of Colonel J. Macready, Assistant Commandant of the Small Arms School, your Correspondent has been able to visit the Hythe Wing of the school and discuss with Lieutenant-Colonel A. S. Turnham, Chief Instructor, the new conception of the infantryman's weapons and particularly the developments in the use of the rifle and the training of the new type of soldier—the 'stalker-sniper.'

"Seventy-two men in each rifle battalion are to be trained as snipers, but the sniper as Hythe now sees him is nothing like the specialist developed during the Great War, when his work was closely connected with prolonged defence and trench warfare. With the greater mobility brought about by mechanization, prolonged static defence is improbable.

"In mobile warfare—Lieutenant-Colonel Turnham illustrated his points by references to Palestine, Spain, and China—there should be many opportunities of inflicting loss and of harassing the enemy and considerably restricting the movements of his forward elements, even in the movement or encounter phase of fighting. Movement cannot be continuous. Each side must 'stop for breath' and locate points of resistance before it can launch attacks.

"Reconnaissance by patrols and individuals is necessary, and this affords a good opportunity for the 'stalker-sniper.' A leader 'bagged' in the early stages may greatly influence an attack. Patrols can be allowed to come on until they are a certain target for the stalker. Forward observation officers may be another good target for a resolute stalker with confidence in his marksmanship."

Picking Off Leaders

"In attack, the stalker, an expert observer and scout, should be invaluable to the intelligence department and may frequently have opportunities of locating hostile posts with his telescope and of picking off leaders with his rifle, fitted with a telescopic sight. In consolidation he will be able to limit the activities of hostile patrols, give warning of counter-attack, pick off members of working parties, and generally worry the enemy and undermine his morale. In protracted defence the stalker will be the principal means of harassing the enemy at short range. At all times he will be on the look-out for tanks, for an open slit in a tank or armored car is a fine mark for a skilled marksman, particularly the driver's slit. A dead driver puts the crew of a tank in an awkward predicament.

"This is but a brief account of the work of the stalker as Hythe visualizes it. Lieutenant-Colonel Turnham took your Correspondent over the stalker's training area and

pointed out, by means of targets, many interesting possibilities likely to occur in all sorts of country. Asked how men with sufficient intelligence and courage, as well as the necessary skill with the rifle, were to be found for this very difficult work, Lieutenant-Colonel Turnham admitted the difficulties, but said he believed that 72 men of the right sort could be found in most battalions. A major problem is that the men needed as stalkers are just those who are likely to get quick promotion. There must therefore be a reserve of men who can be trained, which is one of the reasons why the rifle is still of importance.

"Accuracy in marksmanship has been fostered on the Bisley ranges of the National Rifle Association, and in the training of stalkers in the use of the rifle, Bisley methods have been adopted in their entirety. The Bisley man has already part of the make-up of the stalker. He knows how to use his rifle with scientific accuracy. If he is also a fit man and a hunter of big game he is the ideal stalker according to Hythe standards. It is significant that for the past two years the Army Council has given every encouragement to officers and men of the Regular and Territorial Armies to compete at Bisley under N.R.A. rules."

ON OFFHAND SHOOTING

(Continued from page 17)

just when you are getting somewhere. Don't be foolish and try for a forty, when with a little more care and effort you can get a forty-five or six.

Another thing that the good offhand shot knows is that he may have to adjust his sights for offhand just as he does for prone shooting. Let us say, for example, that you are able to make a forty-nine or fifty, prone, but when you shoot offhand the majority of your shots are just under the bull. You are sure that you have a good sight picture, but no matter how well you aim, the tendency is to shoot low. The obvious cure for this ailment is to raise the sights one or two minutes, but many tyros seem to think that because their sights are properly set for prone, they must be correct for offhand.

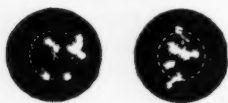
On bright, sunny days the majority of your shots may go low. This is usually caused by the sun glaring on the target and preventing you from holding as close to the bull as you believe you are doing. Don't try to fight such a condition—raise your sights a minute or two. When the sky is overcast you get the best light to shoot by. Now if, the day before—when it was bright and sunny—you fired and your shots went into the black with consistency, you may be led to think that your sights are O. K. But now you are firing with the overcast sky, and, as a rule, your shots will go over the bull at twelve o'clock. Don't try to force the shots in—lower the sights. Most of the trouble from weather conditions can be overcome by constant practice and score-book study. The knowledge that you acquire will surely result in higher scores.

Above all, do not be afraid to enter matches with somebody else. There is a certain amount of nervous strain that every shooter experiences in a match. This is generally more noticeable in offhand shooting than in prone. Some shooters go all to pieces during a match. This is not from lack of practice, but is caused by the shooter not having enough match experience. My advice to you is to devote a certain amount of your practice period to match practice. Who cares if you lose? And you will not always lose. Sooner or later you will develop enough confidence in yourself to go into matches with the knowledge that you can defeat the other fellow. When this time arrives you will have reached the first steps on the ladder of shooting success.

HOT TARGETS STILL POUR IN

10-X Possibles Galore with Palma Match, Palma Kleanbore and Hi-Skor

TWO 10-X POSSIBLES—ONE IRON, ONE SCOPE



G. Paul Bomgardner sends in two sweet 10-X possibles, one with iron sights, one with scope. Both at 100 yards—Palma Kleanbore.

10-X FROM HERSHEY, PA.

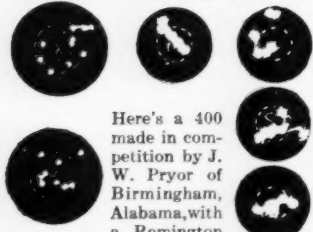


Here's a beautiful 10-X possible at 50 yards by R. C. Flowers of Hershey, Pa. Iron sights—regular Kleanbore ammunition.

ONLY 10-X AT VANDERGRIFT

Alan Salkeld made this 10-X possible at 100 yards with Palma Match. It was the only one made at the recent Vandergrift, Pa., Shoot. Alan already has a 10-X brassard. They seem to come easy to him.

400 X 400 WITH 34-X'S BY PRYOR



37 Johnson and Palma Kleanbore.

JACOBS AGAIN!

Here's a beauty—a 25-shot possible at 100 yards with 22 X's. Homer Jacobs of Dayton, Ohio, made it with Palma Kleanbore. We have never seen a better elevation.

20-X'S AT 50 YARDS WITH "HI-SKOR"

Another honey by Harry P. Rettinger of Sunbury, Pa., made with the new Remington Hi-Skor. .22's and scope sights at 50 yards.



20-SHOT POSSIBLE... "HI-SKOR"

This 20-shot group at 100 yards measures just 1 1/2 inches. Made by J. N. Roberts with Hi-Skor after only 1 sighter.

DEWAR 400 WITH "HI-SKOR"



Here's proof of the surprising accuracy of the new Hi-Skor ammunition! Clarence Barrow of Northumberland, Pa., made this beautiful 400 x 400 over the Dewar Course. This Hi-Skor ammunition is sure going places!

SCORES 10-X IN MASS. SHOOT



Eric Johnson won the 100-Yard Iron Sight Match at the Mass. State Championships with a Model 37 Remington-Johnson and Palma Kleanbore. Score—399 x 400, including the 10-X possible above.

10-X FOR BILL SAYRS



W. A. Sayrs of Cincinnati, O., is sure hitting 'em hard these days! Here's another of his 10-X targets, this one made at 50 yards with Palma Match VEEZ 38.

"HI-SKOR"—BEST EVER USED



A. C. Blocher of Elkhart, Ind., tried out the new Hi-Skor ammunition, and ran off 25 straight 10's with 21 X's, including a 10-X possible, at 50 yards, and a 5-X possible at 100 yards (high group fired without sight change—5 X's resulting after sight adjustment). Blocher says of Hi-Skor .22's, "They're the best I've ever used in my rifle!"

NICE SHOOTING FROM COLVILLE, WASH.



Two fine groups of 10 shots each, fired at exactly 52 feet by Wm. Schumaker. Bull at left fired first; bull at right after one-quarter minute click of windage. Model 37 and Kleanbore.

ERIE, PA., SENDS THESE

Two fine groups constituting a 10-X possible at 50 yards, made by Roy S. Bower of Erie, Pa., with Palma Match VEEZ 38. A good illustration of what you can expect from this fine ammunition.



10-X FROM THE PHILIPPINES

Two nice targets made by Sixto Farol, Secretary-Treasurer of the Cebu Gun Club, Cebu City, P. I. Made at 50 yards with Palma Match, despite a variable tropical breeze.



HERMAN PRINS 10-X'S

But not his first by any means! Part of a 400 x 400 over the Dewar Course, iron sights. Prins scored another 400 x 400 with scope two days later, using his Model 37 and Palma Kleanbore ammunition. Notice how that Model 37 and Palma Kleanbore combination is clicking?



ANOTHER 10-X WITH "HI-SKOR"

Eugene Huff of Coshocton, Ohio, turns in this excellent 10-X made with iron sights at 50 yards with the new Hi-Skor ammunition.



3/4" GROUP WITH MODEL 37



Frank Record of Wichita Falls, Texas, sends in these beauties made at 50 and 100 yards with a Model 37 and Palma Kleanbore. The 100-yard group measures three-quarter inch. The 50-yard groups were made with iron sights.

10-X FROM ALLENTOWN



Two five-shot possibles at 50 yards add up to a 10-X possible and a brassard for Wm. Katkowski of Allentown, Pennsylvania. Made with Palma Match, in competition.

10-X FROM BRADFORD, PA.

C. A. Nicklas got this beauty in a match between the McKean County Rifle Club and the Smithport Rifle Club, shooting Palma Match.



POSSIBLES and IMPOSSIBLES

by FRANK J. KAHR



Turned up some interesting dope while looking over the equipment records of the N.R.A. Tournament of Champions. In the Metallic Sights Shoot, Model 37 Remington rifles; Alabama T. K. Lee; California's F. Kelly; Kansas' Edward Kell and Louisiana W. H. Womack. In the Any Sights event T. K. Lee, Alabama, ranked first with a Model 37 Remington. In the possible event of Utica, another P. m. ing Palm. In the Any Sights event T. K. Lee, Alabama, ranked first with a Model 37 Remington. In the possible event of Utica, another P. m. ing Palm. In the Any Sights event T. K. Lee, Alabama, ranked first with a Model 37 Remington. In the possible event of Utica, another P. m. ing Palm.

They sure have a swell range out Vandergrift, Pa. They tell me it is at least as good as the range at Marietta. I haven't seen Marietta yet, but it is as good as Vandergrift there at least two smallbore ranges in the country I would like to shoot on.

We got a thorough soaking at Akron Shoot. Boy, how it rained! reminded us of a couple of years when our old friend Dana Scarboro had to take us into town for a complete change of clothes. Dana had to show up this year and the Ohio Goodyear Photographer had to take his place.

I've seen a lot of odd positions in my time, but there was one fellow at Akron who had them all beat, and don't mean Jack Wark of Buffalo. Incidentally, I've seen Jack, who is a contortionist or something, get into a prone position that was a honey. Loudon and some of the other boys got Fred Moulton to rule on the positions. Jack has promised to put on an act at Perry and we are going to make a one-reeler out of it for the benefit of rifle clubs about the country. I have to laugh at it himself.

One of my friends in Louisville, Bert Tuyman, has been doing a pretty good shooting lately down the Blue Grass Country. In the "Pepper Match" in Louisville recent 30 shots at 50 yards and 30 at 100 scored 298 and 299 respectively was high of course.

He then drove on to Vincennes, Indiana, and out of a possible 100 points dropped 5, which with the ring score gave him 1592 x 1600. Considering that 100 miles separated two matches, this looks like a pretty good performance. It brought medals and a trophy, which is bad day's work.

Oh, yes, Palma Match was the ammunition used.

Henry Perry Hewit of Cleveland, Ohio, was recently awarded a 400 brassard for a possible over the Dewar Course (iron sights) with Palma Match—going, Henry.

WOO AND BERKHEISER STAR AT AKRON SHOOT

**“PALMA MATCH” SHOOTERS
WIN BOTH EVENTS IN
TOURNAMENT OF CHAMPS**

**Moore wins iron sights
event... G. D. Jones
any sights**

WASHINGTON, D. C.—Announcement of the final results of the N.R.A. Tournament of Champions finds Palma Match and Palma Kleanbore shooters at the top of the list.

In the Iron Sights event, 40 shots at 50 yards and 40 at 100; G. W. Moore of Washington, Pa., ranked first with 380 and 51 X's. T. K. Lee, shooting a Model 37 Remington-Lee, was second with 397 x 400 with 59 X's. G. D. Jones of Portland, Ore., won Any Sights Match with a rousing 380 possible and 69 X's, shooting Palma Match. T. K. Lee, shooting his Remington-Lee Model 37 and Palma Kleanbore, ranked second with another possible and 61 X's. C. H. Vin of Utica, Mich., was third with another possible and 55 X's, also shooting Palma Kleanbore.



Chester Woo, American Chinese youth who won the Zeppelin Individual Match at the Goodyear Rifle Club.

**O. PARKER WINS TWO
EVENTS AT ROCKFORD**

**any wins for Palma Match
and Palma Kleanbore**



R. D. Berkheiser of Hopewell, Pa., winner of the Zeppelin Grand Championship and the Litchfield Trophy.

ROCKFORD, Ill.—Out at the U. S. Grant Memorial Matches, F. O. Parker, shooting a Model 37 and Palma Kleanbore, won the 50-Meter Iron Sight with 396 and Match 15 over the Dewar with 399 x 400. T. L. Lord won the 100-Yard Any Sights with 397 x 400 and 20 X's; G. Russell's 397 x 400 won the Any Sights; Cortez Souter won the 100-yard Iron Sights with 398 x 400 and Wes Hansche won Match 7 with 399 x 400. All used Palma Match. L. Wood won the Iron Sight, Condon Dewar with 397 x 400, using Model 37 and Palma Kleanbore.

**D. ALLYN SWEEPS
MASS. CHAMPIONSHIPS**

**Aggregate and 5 Individual
events with Palma Kleanbore**

BURN, Mass.—Harold Allyn of Springfield had a field day at the rematches of the Bay State Rifle Pistol Association, held on the rifle range in the United States. Shooting Palma Kleanbore throughout, Allyn won five of the seven events he shot in, plus the Grand Aggregate, which gives him the Massachusetts Championship title. Bud Johnson, another Palma Kleanbore shooter, won the 100-Yard Iron Sight with a neat 399 x 400 and 24 X's.

**Chester Woo wins Zeppelin Individual
with Model 37 and Palma Kleanbore**

**BERKHEISER SCORES 2766... WINS
GOODYEAR CHAMPIONSHIP**

AKRON, Ohio—Although the recent Fifth Annual Zeppelin Smallbore Rifle and Pistol Tournament here wound up in a driving rainstorm, it was a bright day for the Remington Model 37 Rangemaster and Palma Kleanbore ammunition, which cleaned up the main events of the program.

Chester Woo of Coshocton, Ohio, put his newly acquired Model 37 through its paces and won the Zeppelin Individual, one of the prize matches of the Tournament, with 592 x 600. The course was 20 shots at 50 yards; 20 shots at 100 yards standard target; 20 shots at 100 yards International Target; Any Sights.

This was Chester's first big match, and to say he was pleased is putting it mildly.

Meanwhile R. D. Berkheiser and Palma Kleanbore were having a field day, as "Berk" took the 100-Yard Any Sights Match with 399 x 400 and 23 X's. He also won the 100-Yard International with 195 x 200 and tied for the Cash Aggregate with 3165 and 109 X's. His consistently high ranking in all matches won him the coveted Goodyear Small Bore Rifle Championship and the P. W. Litchfield Trophy. Berkheiser is the first man other than a member of the Zeppelin Club to win this trophy during its five years' existence.

MARE ISLAND (Cal.) TEAM SHOWS TROPHIES



Here's the team that won (among other events) the California State Inter-Club Team Match and the Western States Team Match. All members shoot Palma Kleanbore. In the California State Shoot two members used Model 37 rifles—in the Western States, three used Model 37's.

Trophies and medals shown were all won since Jan 1, 1938. Left to right are the Sam Pitz trophy for competition between Mare Island Navy Yard and Puget Sound Navy Yard—Mare Island

has won it the last three years; Brady's Trophy won by Sam (King) Lear at Gridley Field Day; Fresno Chamber of Commerce Trophy won by Bud Altenbern at California State Matches; California State Team Trophy won at State Matches and Richmond Daily Independent Trophy won at Western States Matches at Richmond.

Left to right are team members Carlton B. Smith, Sam C. (Coach) Lear, Bud Altenbern and Royce Inman, Sr.

**THE TARGET OF
THE MONTH**



Fourteen-year-old Anna Lou Ballew, daughter of Secretary R. C. Ballew of the Mannington, W.V., Pistol and Rifle Club, made this 7-X possible at 100 yards, Iron Sights, with the new Hi-Skor ammunition. Anna Lou has already won her "Expert" rating from the N. R. A.

Send in your "hot" targets to Frank Kahrs, Remington Arms Co., Inc., Bridgeport, Conn.

OVER THE NEWS DESK

CLUB SUGGESTIONS

The time element in postal matches staged between rifle or pistol clubs robs the competition of much of its timely interest. Results of the match cannot be made known until mail reaches each of the competing clubs. However, a few groups, in an effort to impart to their home range matches some of the excitement of shoulder-to-shoulder firing, have inaugurated a novel method of exchanging scores during the course of a "postal" match, reporting the event as it progresses. Among others, several clubs in New England and one in Montana have tried the system. Typical was the Woodend vs. Beverly, Massachusetts—

RADIO MATCH

Shooters have been conducting postal matches for years and have waited patiently, sometimes for weeks, to receive the other team's scores before they knew whether they had won or lost. We have overlooked one of the finest instruments for conducting matches between widely separated clubs, the amateur radio. There are some 50,000 so-called "ham" operators scattered through the country, most of whom, after the novelty of being on the air has worn off, have very little that they can do to make use of their apparatus. No doubt many of the readers, who have all wave receivers, have heard amateur operators on their phone bands calling CQ, CQ. This means that the particular operator is on the air asking somebody, no matter who, to get in contact with him so that he can talk.

The Amateur Radio Relay League has a setup wherein the amateurs are provided with a certain amount of work to do in the way of relaying messages back and forth across the continent and over the seas. But the amount of traffic is limited so that, generally speaking, most of the amateur operators either end up by arranging schedules with other operators, where they seem to have common interests, or else the operation of their sets simply amounts to short talks with other stations who answer their CQ call, the talks simply covering the form of apparatus used and the intensity and quality of the signals transmitted.

Most of the amateur radio work is done with what the amateurs call CW, which means "code transmission". About 25% of them are provided with radio telephones with outputs ranging from 5 to 1000 watts. These amateurs operate on bands allotted to them by the Federal Communications Commission, which include 160 meters, 80 meters, 40 meters, 20 meters, 10 meters, 5 meters and 2½ meters down as far as they wish to go. For transcontinental and transoceanic transmission the relatively high frequency bands are most efficient, that is to say, the 10 and 20 meter bands. For more local transmission the 40, 80 and 160 meter bands are desirable, although as the frequency gets lower the amount of power to make distant countries becomes greater. The ultra high frequency bands, that is to say, 5 and 2½ meters, are ordinarily only useful for local work, as these bands under normal conditions transmit in straight lines corresponding to lines of vision and do not return to the earth's surface. The ultra high frequency bands require very simple and easily portable apparatus and the law is such that the amateur operator may move his equipment around freely and transmit from any point he desires. A great many transmitters are installed in automobiles for 5 meter operation and contacts are made between these portable mobile stations over relatively wide areas. In fact, one such station transported to the top of a low mountain in Massachusetts made contacts substantially as far away

as New York State and Ohio. By means of these portable "rigs" it is possible for the amateur to relay a message to a fixed powerful station, which in turn may relay the message any distance required to another station operating on the same frequency band, the message being relayed from the second powerful station to an ultra high frequency or 5 meter band station located at the second rifle club.

Inquiry has shown that there are a great many amateur radio operators already members of rifle clubs and furthermore it has been the writer's experience that at least 50% of the "ham" operators, when you talk to them about rifle or pistol shooting, are immediately interested and are glad to join a rifle or pistol club. If there are a sufficient number of amateur operators available to form a bona fide radio club, a call letter will be given to the club by the Federal Communications Commission, which call letter is held in trust for the club by one of the club members. In this way, permanent installations may be made so that the rifle club itself, while operating independently of the radio club, may nevertheless have the advantage of using the latter in connection with any matches it may wish to conduct over the air. The apparatus necessary for transmission on the 5 meter band is relatively simple, and indeed a transmitter and receiver, capable of reaching 50 to 60 miles on the 5 meter band, may be built at an expense of less than \$25.00.

As a means of creating interest in the activities of a rifle club nothing can beat a radio match,

A Radio Broadcast from the Camp Perry firing line, Saturday, September 3rd, during the firing of the Herrick team match, 11 to 11:15 p. m., and another earlier in the morning from the pistol range, tentatively scheduled from 9 to 9:15, will originate from WLW, the Nation's Station, Cincinnati, and will be fed to the Mutual Broadcasting System's coast-to-coast network. Watch your local papers for announcements of other broadcasts to be arranged and inquire of your local station manager as to the scheduling by that station of these programs. Going to press early for this issue, it is impossible to give definite schedules aside from those listed above. If our readers will make inquiries of their newspapers and radio stations regarding Camp Perry, it will indicate news interest which these agencies cannot afford to ignore.

as those who are not directly participating in the shooting may watch the proceedings and hear everything that is transmitted over the air, particularly if the radio work is done by radio phone. Even where it is impossible to make use of radio phone facilities the code transmission will provide for the rapid handling of the necessary traffic. In this case, however, the enjoyment is cut down because only those having ability to read code can understand what is being said prior to the time that the decoded messages are read by the operators.

During the match between the Woodend and Beverly Rifle Clubs, the relative shooting of the clubs changed constantly as the scores came in which made the match extremely interesting for those who were watching the bulletin board. If the match had been a postal match there would have been nothing to do but to file the targets and go on home, as the fact that the match was very close would not have been known. As it was, instead of waiting days and even weeks to find out which club had been successful the end of the match found conditions in the two clubs as follows:

"WIDQS. (Woodend) That completes our final score and as far as we can see we have won (Continued on page 35)

TIMED FIRE with Bill Shadel

Attending the Michigan state small bore matches at Detroit, we heard such fabulous reports about a new range project at Jackson, Michigan, we decided to run over and get the dope first hand. Dropping in on the good-natured Jackson pistol shooting spark plug, the somewhat rotund Roscoe Gray, we found that tentative plans call for an elaborate WPA project in conjunction with a surplus to be spent by the local water works department of the city. A club house estimated as a fifteen thousand dollar job with indoor range, and an additional outdoor lay-out of fifty targets, electrically operated a la Tampa, and all the fixin's. That's the kind of a story that shows where this game is heading. Had the privilege of meeting a Police Chief, Edward Harris, who goes on the line with his men and takes the rap for qualification scores; gets downright insulted if he isn't scheduled in the firing order by Sergt. Gray, who is bringing the men along in a regular series of matches, indoor and outdoor. Methinks you'll be hearing more from this aggregation.

* * *

And speaking of ranges and spark plugs, we found in an earlier visit to Ventnor City, adjoining the well publicized Atlantic City, another contemplated WPA project of a ten thousand dollar pistol, small bore rifle and skeet range. What a great spot for vacationing while practicing some close holding and trigger squeezing—a few hours on a modern range, a dip in the surf, and then the Atlantic City eternal carnival. The spark plug—Charlie Scheide, who started out by getting the Ventnor police interested in shooting and then organized some four other clubs just for good measure and to provide local competition for the boys. We learned that Charlie spends all of his time aside from his work in instructing, doing most of the reloading for the Ventnor lads, and then stirring up interest in a new range besides. That's what we call unselfish enthusiasm, and the game in that locale owes a lot to Charlie. Here's our salute.

* * *

In Camp Perry early, August 8th, to work with Major "Art" Rogers, the new publicity officer for the matches, who is one swell fellow and as enthusiastic about getting the news out to you as he ever was about winning those South Dakota U. or the 2nd Division football team games when he was coach, captain and quarterback, or those 3rd Corp Army games against the Marines. An all-around athlete.

First man we ran across at headquarters was Major "Ted" Wessels (lead article contributor to the July RIFLEMAN on "shooting positions") displaying a photo of a fish catch on Lake Erie—a string of some one hundred and fifty beauties, duly verified so he says, without contact with local fish markets. We found Col. Endicott as busy as the Mayor of New York yet finding time to wish us well in getting the matches publicized as they deserve among the sports readers.

* * *

A flash from the far Northwest intimates that pistol shooting may once again be revived in Portland, Oregon. If you're one of the handgun clan in that neck-of-the-woods contact Floyd McClure at the U. S. Engineers Office in Bonneville, or inquire at the office of Sheriff Pratt in Portland.

RADIO MATCH

(Continued from page 34)

the match with a score for our first team of 423 as against a score of 407 for your first team. Our second team winning by a score of 371 to 264, our final scores being as follows: L. B. Smith 88, H. Harrison 87, D. Livingston 85, Miss J. D. MacNeill 83, H. R. Gaspar 80, W. Collins 79, D. C. McNeill 78, W. Dansreau 75, W. Brackett 72, H. McLeod 67. Please verify. K"

"WIGOR (Beverly) Your scores check with those we have on the black board here and we must concede that you have beaten us. Our final scores were: R. Howes 90, A. Harris 86, A. Stover 79, A. Winter 77, F. Burwen 75, G. Winter 72, Bonnie Zieff 56, O. Record 51, C. Richardson 49, C. Yeaton 36. K"

"Well, that seems to be the story, Cliff. The boys are naturally disappointed and if more of our regular shooters, such as Ernie Ball had been here, the story might have been different. In any event the crowd have been very much interested in the match and are still standing round the bulletin board and transmitter. So we will now stand by for anything further you may have. K"

"W1DQS. Nothing more here, Charlie, except that we will forward our targets for verification by your club, although I am sure you will find that there will be no changes in the final result. We will expect to receive your targets by mail for verification, although we know that your scorer is always accurate and that if anything your score will be a little higher. Best of 73 to you, Charlie. It has been a fine QSO with very little QRM. As there seems to be nothing more we will sign off for the evening. WIGOR signing off with W1DQS and standing clear of the band. K"

"W1DQS back to WIGOR. Ok, Cliff, best of 73s from the Woodend Rifle Club to the Beverly Rifle Club. It has been fine business and everything went through OK, except that we took a beating. So good night, Old Man, and we'll be seeing you later. W1DQS signing off with WIGOR and pulling the switches."—JAMES S. STEWART.

HERE'S AN IDEA!

Have you ever been afflicted with the trouble of trying to find volunteer scorers at one of your local Shoots? Here is an idea from the arrangements which will be in effect at the Bisley Matches in England this year which seems to have considerable possibilities:

Our British friends fire two men on one firing point, the competitors shooting alternately. This year they are going to squad four men on a target at the same time. Two of the tickets will bear black squadding numbers and two of them will bear red squadding numbers. The range officer will assign the two having black numbers to shoot while the two having red numbers are assigned to score, and when the two with black numbers have finished shooting they will score for the pair having red numbers on their squadding ticket.

You might try this little idea if you have

trouble finding volunteer scorers from among the competitors.

D. C. M. NOTE

Any member of the National Rifle Association whose order has been approved by this office may call at the arsenal or ordnance depot designated by this office for material to be purchased. The arsenals and ordnance depots are open for handling such orders from 8 A. M. to 12 noon and from 1:00 P. M. to 3:00 P. M. daily, except on any Saturday, Sunday or legal holiday.

Sales orders cannot be handled for anyone visiting an arsenal or ordnance depot on any Saturday, Sunday or legal holiday, nor at any hour, except as above stated.

THE POSTAL TOURNAMENT OF CHAMPIONS

With the completion of the Tournament of Champions the ring is cleared after another very successful outdoor postal match season. It was a heavyweight performance from start to finish, with stellar honors going to Guy D. Jones of Portland, Oregon, in the Any Sights Division, and G. W. Moore of Washington, Pennsylvania, in the Metallic Sights class. This Tournament of Champions—a new event this year—is a most important addition to postal competition, for it not only created unusual interest among the shooters themselves, but as well made it possible for the first time to select national postal champions on the same basis as that used at several major Registered Tournaments—a shoot-off.

The match was divided into two parts, the preliminary of once over the Dewar Course and the finals when each contender had to complete the course twice in the same day. In the initial stage the shooter registering the highest score in each of the twenty-nine states competing was declared state champion and received a corresponding award. Finally these state champions, together with those others in each state having the same numerical score, competed against each other to determine the two National Postal Champions for 1938.

The final bout of each division was really exciting. At the bell E. G. Pope of Mineral Wells, Texas, got in the first crack for the Iron Sights Title with 797 and 52 X's. Not to be outdone, one of Alabama's heavyweight shooters, T. K. Lee of Birmingham, almost finished things when he boosted the total to 59 X's. Old Man Title was valiantly trying to steady himself when Moore swung a haymaker from the floor, and with a score of 798 and 51 X's, knocked him clear out of the arena along with the old iron sights record.

The Any Sights Title received the same rough treatment when Charley Vincent, firing in Utica, Michigan, started the punishment with 800 and 55 X's. T. K. Lee countered by raising the total to 61 X's. As if this were not enough, Guy Jones, who qualified in the preliminary with a near-perfect score of 400 and 39 X's, ended the bout by scoring a possible 800 with 69 X's! When last seen the Official Record Book was making arrangements for a major operation.

Moore's score of 798 and 51 X's with metallic sights is truly a remarkable performance and shows consistency that few others can match.

Jones' blue ribbon exhibition, both in the preliminary and finals, when coupled with the knowledge that he is a comparative newcomer in the small bore game is particularly noteworthy. Reports show he took up small bore marksmanship about four years ago, although some of the older shooters will doubtless remember him best as a member of the Oregon Civilian Team at Camp Perry ten or twelve years ago. Watch out for him next gallery season, for Jones is said to be an even better offhand shot than he is prone. If this is true he really is the man to keep in mind, for a record of three times over the course and only 12 X's less than a perfect possible really is working on the X-ring and no mistake.

BOOK REVIEWS

"THE MODERN FOWLER"

By J. WENTWORTH DAY

Published by Longmans-Green, New York. 303 pages 8½ x 5½. Illustrated by etchings, drawings, and photographs. Price, \$6.50.

In *The Modern Fowler*, J. Wentworth Day has written a most interesting account of how wildfowl are taken in England; and one's first thought is to compare their methods with ours here in America. From my own point of view, the name *Modern Fowler* is not quite the proper title for the book, as it has been many years since anyone was permitted to take ducks by such methods in America. The surprising fact, at least to me, is that the supply of wildfowl seems to hold out so well in England, with almost no restrictions, while in our country, with so many laws and regulations to protect the game, it is diminishing at an alarming rate.

The book thoroughly covers every branch of the sport, besides describing vast areas of duck and goose marshes in widely scattered parts of England. As a yachtsman having read of summer cruises in these same waters, I find the names of places strangely familiar, and it was interesting to read what these places are like during winter gales, with snow and sleet, when only the wildfowler cares to go out.

The chapters describing the gunning yacht, the punt guns, and old market gunners—of which there are many real characters—all make interesting reading. There are also chapters on the fowler's personal equipment, and suggestions on how to attract ducks. The great duck traps, called "duck decoys," are well described, as are also the families of the decoymen.

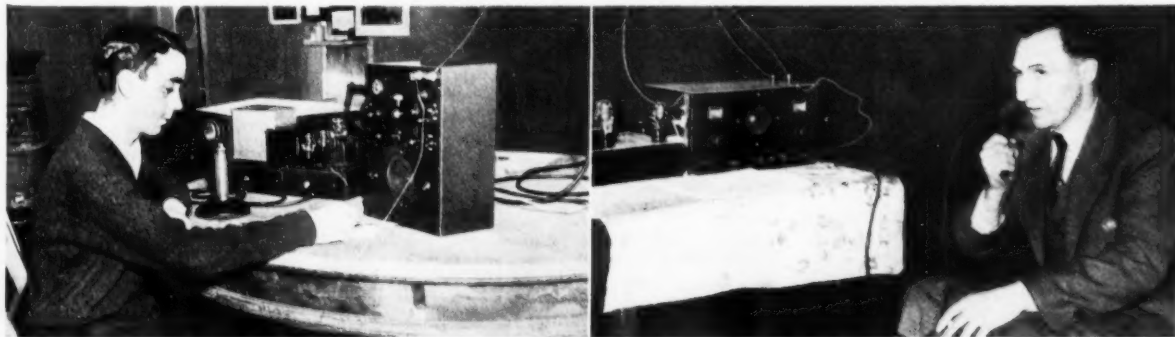
In reading the book one cannot but have the desire to go and see these many interesting places, and meet those left of the wildfowlers.

The book will especially appeal to the old-time wildfowler who can remember the days when we had enough ducks here in this country to permit one to bring in a fair-sized bag, with a clear conscience.

This book is splendidly illustrated with beautiful etchings, photographs, and pen-and-ink sketches.

C. LOWNDES JOHNSON.

"Calling W1DQS, Woodend Rifle Club, Swampscott, Massachusetts."



Tournament Reviews

REGISTERED MATCHES

The Northwest Pistol Matches

—"The rapid growth of the pistol shooting game in recent years has brought about an entirely new challenge to us old timers," Walter Day, Seattle Police Pistol Team Instructor and one of the N. R. A.'s best known pistol directors, was speaking. What that challenge is and how Walter proposes to answer it is an important phase of this story of the Northwest Pistol and Revolver Championships.

Getting back to the challenge, time was, according to Walter, when once a man reached his peak he out-shot most of the field consistently and for years thereafter could reasonably expect to be near the top in every match fired. But the influx of new blood into the game has changed that picture. Better guns, better ammunition, better coaching with more attention to the individual habits of new shooters,—all these things plus the great asset of youth have helped new men to reach their peak more quickly, and to remain there longer. Moreover there is no denying the rather wide dispersion between present day peaks and the best performances of yesteryear. Many old timers are today able to equal their all time best scores consistently but few can hope to close the "dispersion gap" above referred to.

To recognize this situation or to ignore or secretly resent it. That, briefly, is the challenge. Walter has elected to recognize it. He points out that the game has been good to him. He has won his share of honors, has made friends that will endure for life. So of course Day is not retiring from the competitive game. You will see him at Camp Perry again this year and, I expect, for many years to come. And he will be in there trying to match those present day peak performances of relatively new men in the game. But should he succeed in matching only his own best scores, that will be sufficient reward—that plus the satisfaction that comes from helping new shooters to shoot better scores.

In the pistol tournaments organized by Walter Day and fired at Fort Lawton near Seattle recently this matter of new blood was a decisive factor in the results of practically every match fired. It was responsible for the establishing of a new record score of 293 made by M. R. Rogers of the U. S. Customs Border Patrol Team in the Center Fire National Match course event. Incidentally, young Rogers and his team mates—Chapman, Trones and Hogan—accounted for all but two of the place medals awarded in the one day tournament which preceded firing of the Northwest Championships.

Honors were more generously distributed in the Northwestern Matches fired July 16th and 17th, which meet attracted more than a hundred marksmen from military, police and civilian organizations of the northwest, including teams from the British Columbia Constabulary and Victoria city police. It was in this tournament that the Canadians (more new blood) gave notice that interest in pistol shooting recognizes no border lines. In Match 1, for instance, two of the three place medals, including the winning award, went to W. G. Bailey and J. A. Henry of the B. C. police, while C. Clarke and Jake Young, team members, placed second and fifth, respectively, in subsequent events. All the matches were fired over N. R. A. courses on standard American targets.

Other winners at the Northwestern Tournament included the aforementioned U. S. Customs shots, Rogers, Chapman, Trones and Hogan; U. S. Coast Guardsmen M. J. Archambeau and John Jewett; Seattle Police officers Harvey O'Brien, Captain J. J. Haag, R. M. Anderson and Sergeant Walter F. Day; U. S. Marine

R. P. Grimm; Border Patrolman T. V. McKelney and Arvid Anderson, present .22 caliber National Match Course record holder, and George S. Cook, both civilians.

The interest and caliber of competition in these matches coupled with the excellent range facilities available at Fort Lawton suggest the need of a regional pistol tournament in the northwest, similar to the annual Mid-Winter meet at Tampa, Florida. A series of such tournaments, if held throughout the country, would serve not only as preliminaries for the National Matches but would also give shooters who cannot come to Camp Perry an opportunity to participate in regional matches modeled after and second in importance to the great National Meet.

Following conclusion of the Northwestern Matches the shooters with their wives or lady friends gathered at Hotel Gowman to enjoy a delightful banquet. Toastmaster of the occasion was the *Post Intelligencer's* genial Royal Braughm and the principal speakers were Mr. Suran, F. B. I. agent in charge and Sergeant Vallet, Director of Seattle's Police Training School. It was at the banquet that Captain Haag made a dramatic presentation of a gold badge, engraved "To Sgt. Walter F. Day for his untiring efforts in developing pistol marksmanship, from the Seattle Police Pistol Team, 1938."

Then followed presentation of the trophies and medals by Walter Day, assisted by the Northwest Association's efficient Secretary, Miss Grace Corveth, after which the Customs boys filled their cups with wine and everybody began to sing. But the reporters had all gone home,—and besides that is another story.

New York State Pistol Matches

Despite heavy rains which fell on both days of the scheduled week-end, one hundred and fifteen pistol shooters—all New Yorkers—participated in the annual state matches, sponsored by the Onondaga Chapter, Reserve Officers Association and fired over their improved Split Rock Range, near Syracuse.

Situated in a natural valley surrounded by steep slopes, the Split Rock Range provides a safe back-stop, plus range facilities second to none. The layout consists of two separate ranges, both equipped with moving targets. The dual ranges made it possible to run off two series of matches—one series fired on Standard American Targets and the other fired over the Army Course using target "L". The program included a generous schedule of both classes of matches and the two ranges were busy most of the time. A local staff of Reserve Officers supplemented by Major Noxon of Poughkeepsie and headed by Lieutenant Frank S. Wilson, Executive Officer, did a good job in running off the matches.

Outstanding winner of the meet was Jimmie Overbaugh, former D. & H. Railway police anchorman, now connected with the New York State Conservation Department. Jimmie fired the only perfect score over the Army Qualification Course with a center fire revolver to win the first match and took six of eight open events. Other winners included R. Mosteller who tied and outranked Jimmie for first place in the .22 Army Course match, J. Voss, winner of the .38 National Match Course event, and Mrs. F. Palmer who captured both of the matches restricted to ladies.

Winning teams in the various classifications were Co. "C", 108th Inf., Iriquois Revolver Club of Utica, (winner of three club team events), the Binghamton Police, and the "4 man" lady team consisting of the Mrs. Palmer, Lewis, Herron and Madden, representing the New York Central Athletic Association of Albany.

Maine Small Bore Championships

The Maine State Rifle Association was host to some seventy small bore fans on the occasion of its seventh annual .22 rifle tournament held at Skowhegan, in "Vacationland", over the week-end of June 25-26. All the new England states were represented at the meet, most of them also sharing in the distribution of prizes. L. A. Conant, lone New Hampshire marksman, captured only one event but that was the small bore championship, an aggregate of matches 6, 7 and 9. In this feature event, young Dick Ebbeson, Maine's leading contender, took runner-up honors while third place was landed by C. W. Staples, another Vacationlander.

Incidentally, the small bore shooters of Maine have come a long way in recent years and their good scores plus the enthusiasm and interest they evidenced at this shoot is a tribute to the untiring efforts of such old timers as Lester Clarke, E. E. Haskell, Captain Thomson, Kent Pierce, Carl Merrow, John M. Lane, and others who have helped in one way or another to make Maine shooting minded.

Winning honors in other individual events went to Mrs. John W. Cole, Newton Center, Massachusetts, who copped the 50-meter championship; F. S. Clough, Madison, tops in the state of Maine Dewar Match; John W. Cole, Newton Center, off-hand match and 100-yard championship; Ray W. Rickards, Madison, 50-yard short range winner; Harmon J. Sheldon, Fair Haven, Vermont, Dewar course championship; and Everett Tucker, Montpelier, winner of the final event fired at 200-yards. The well-known Massachusetts Delegation consisting of the Coles and the Rands (Mr. and Mrs.) plus George Fox easily took winning team honors in the five-man interstate event. In second place was Vermont, three points up on Maine's first team.

Fairmont (W. Va.) Pistol Matches

In spite of a Sunday law which kept down attendance, about sixty rifle and pistol shooters squared off for the second annual Mountain State Rifle and Pistol Tournament, held July 16 and 17.

Splendid shooting weather greeted the representatives from about ten states and under the capable range management of our Fairmont Chief of Police, Capt. Joseph T. Hodges, for the rifle matches and First Sergeant E. E. Stout of the West Virginia State Police, acting Range Officer for the pistol events, all the matches were run off promptly and smoothly.

In the rifle matches L. E. Kemp from Isabella, Pennsylvania took top honors, winning the aggregate both days as well as the Grand Mountain State Aggregate. Noble Hinckle, Cumberland, Maryland took the fifty-yard metallic sight match on Saturday with a score of 398. L. W. Griffiths, Pittsburgh, Pennsylvania won the hundred-yard any sight match with a score of 395. Marshall Howard of Joseph Mills, West Virginia, took the fifty-meter metallic sight match with a score of 391. L. E. Kemp teamed up with the rambling junior, Francis Chidsey from Wayne, Pennsylvania to win the two-man team, any sight match with a score of 792. On Sunday our own Fred S. Ambrose of Fairmont started the day off by winning the hundred-yard metallic sight match with a score of 396. The Dewar Match was won by C. W. Eise, Mannington, West Virginia with a score of 395. The fifty-yard any sight match went to G. W. Smith, Parkersburg, West Virginia, with a 399, and the fifty- and hundred-yard any sight match was won by H. W. Meiser, Marietta, Ohio, with a score of 398.

In the pistol events Clyde E. Schetter from Akron, Ohio, stole the show, winning the two-day Grand Aggregate with a score of 544 with Capt. D. M. Shoup, Quantico, Virginia, running second with a 540. Schetter also won the .38

caliber slow fire match, with a score of 181, the .22 caliber slow fire match with a 183, the .22 timed fire match with a 186, the rapid fire .22 caliber match with a 192 and the .22 caliber National Match Course with a 280 to complete two days of good shooting. Louis Allen, a tyro from Moundsville, West Virginia, won the .38 caliber timed fire event with a score of 186. W. E. Stark, Fairmont, West Virginia won the .38 caliber rapid fire match with a 180. Capt. D. M. Shoup took the .38 caliber National Match Course match with a 264. Sergeant E. E. Stout, Fairmont, took time off to team up with W. E. Stark to win the two-man team .38 caliber match over the National Match Course with a score of 545. Stout then teamed up with C. E. Hall, Albany, New York, to cop the two-man team .22 caliber match over the National Match Course with a score of 553. The .45 caliber match over the National Match Course was hotly contested. It was won by Capt. D. M. Shoup with a score of 253 with E. M. Stout a close second with 252 and A. M. Springer third with a 251.—A. M. SPRINGER.

Akron's Zeppelin Small Bore Shoot

Before the small bore clan had a fair chance to regain their composure after Bill Patriquin's victories at the Vandergrift Carnegie-Illinois matches a week previous, the good-natured Pennsylvanian showed up for the 5th Annual Zeppelin Open Tournament at Akron, Ohio, and nearly repeated his clean sweep in these events. When the finals of the three day competition were posted Bill had claimed five firsts, including the cash aggregates and two doubles matches, teamed with Ray Loudon in one and Claude Westfall in another. This boy Pat seems destined, more than ever before, to offer a constant threat to the old-timers of the game. Hardly lesser stars were R. D. Berkheiser, Hope-well, Pennsylvania shooter, with three firsts, including the Litchfield Trophy for high aggregate, and C. F. Rider, New Kensington, Pennsylvania, also with three.

Only two matches were scheduled for Friday, a 50-yard iron sight and a Dewar scope sight match. The initial event went to Rider with a possible score, while the ubiquitous Patriquin came in for the final match of the afternoon with a total of 399 and 32 X's. Rider, incidentally, shot a rifle equipped with one of the fast becoming popular Sunderhaus actions, now produced in small quantities in a nearby town.

From Port Clinton, next door neighbor of Ohio's famed Camp Perry, came Bob Lausten, who placed high in Saturday's starter, the 50-Yard Any event. His 400 28X tally was good enough to pace the field. Match seven, a Dewar iron sight affair, found Rider again high with 399 and 15 X's, far enough ahead of the pack to give him the Zeppelin Club Trophy. The match that followed, 100-Yard Metallic, was taken by Akron's J. H. Lattimer with a total of 397 and 20 X's. The 50-Meter Individual, iron sights, went to Ned Moor's 399.

Final major event of the Saturday schedule was a two-man team shoot over the 50-Meter course. Patriquin and Loudon's scores of 199 and 198, for a team total of 397, gave them the match and added another first place medal to Pats' already "full-up" medal drawer in the closet at home, if indeed it will hold all he has now. The day's shooting was completed with a Legion Match, drawing ten entrants, and a Women's event. The first went to Rider, with a 199 for the 20 shots at 50-meters, while Dorothea Kelly of Akron led the girls with a possible over the same course.

Unlike Friday and Saturday, the last day of the shoot dawned raining, and conditions grew steadily worse as the day progressed. The inaugural event of the day was the important Zeppelin Individual, changed this year from twenty at 50, 100 and 200 yards by replacing the long-range stage with 20 shots on the relatively unfamiliar 100-yard International target. The surprise winner of the match was a young Chinese, Chester Woo of Coshocton, Ohio,

with a score of 592 over the course. This important win serves as fitting climax for the boy's first season of outdoor competition. His top score indicated remarkable ability, as he was at least six points down after the 50 and 100 yard stages, but succeeded in picking up his lead on the more difficult International target.

Another event on the International target followed, programmed as 20 shots with scope sights. The everpresent Berkheiser took high place with a score of 195. Both this and the Zeppelin Individual were fired in a driving rain, taxing the skill of everyone on the line. Match fifteen, postponed until later in the day, gave first place medals to Ned Moor and Claude Westfall with a total of 798 for the two Dewar scores. An any sight match at 100 yards went to Berkheiser on the strength of a 398 with 23 X's while the final event on the program, a 50-Meter any sight contest, was Westfall's with the only recorded possible. On his second bull of the 100-yard Any event, Milt Klotz of Akron shot what looked to be a 10X possible. Much to his sorrow, one of the shots was just out of the X-ring. Milt apparently got sore about the whole thing and proceeded to put on his third bull another 10-X possible, with all ten shots well inside the line.

Three pistol matches, National Match Course with .22, .38 and .45, and an aggregate of the three, were programmed Sunday. If the Detroit Police crowd hadn't showed up, there might have been some competition. They took ten out of the twelve medals offered, including of course, the aggregate trophy.

A few over one-hundred registered for the tournament, while top entry in any one match was eighty-five. The low attendance this year was due in large measure to conditions in and around Akron. Anyway, it was a grand shooting match and they're all pretty certain to be back for more next year.

The Viroqua-Westby Small Bore Tournament

The first registered small bore meet ever held in Wisconsin was staged on the range of the Viroqua-Westby Rifle Club, July 10. As the name implies, the range is midway between the two southern Wisconsin towns.

The whole show was pretty much Marshall Grosskopf and Carl Frank. Frank, who came in from Rochester, Minnesota to attend the shoot, took first in the number one match with a total of 395 and 21 X's over the Any Sight Dewar Course. His score led that of Grosskopf, well known Marion, Wisconsin small bore shot, by two points. However, sad to relate, that was the last time that anyone other than Grosskopf found his name at the top of a bulletin. His wins included the two following matches and as a natural result, the aggregate of the three. In the 50 Meter Metallic he scored 395 and in the Dewar Metallic, 399. In second place of both events was Frank, who also landed below Grosskopf in the aggregate.

The Delaware Tidewater Championships

The weather man apparently had it in for The Marksman's Club of Wilmington, Delaware, this year. It started to rain four days before the opening match and failed to stop until the day following the week end tournament. Fortunately the course is over a combination of sand and gravel, making the drainage excellent. Though the shooter was drenched by rain, he was not forced to lie down in mud and water.

Wm. P. Schweitzer of Hillside, N. J., ran away with the Tidewater Championship, dropping only five points to score 1395 out of a possible 1400. S. L. McAllister won the Delaware State Championship with a total of 1351.

R. D. Triggs shot the first possible ever scored in match competition over the Marksman's Range. He captured the 50-yard Individual Metallic sights with a neat 400. Not to

be outdone, Schweitzer came back and scored the second possible, turning in a 400 in the 50 Meter Individual, metallic sights. A little later in the day, Triggs again gave the shooters and a small handful of spectators who dared to venture out in the rain a real treat, by having 126 consecutive hits in the 200 yard Swiss Match, Metallic sights. This feat took close to two hours of constant shooting. Jack Bevan, of Haddonfield, N. J. scored 115 consecutive hits in the same match.

A registration of 71 shooters helped make this the most successful Tidewater Tournament ever held. It was the general opinion of all that next year, with good weather, the Tournament should be one of the finest in this section. —F. F. Palmer.

Pacific Southwest Small Bore Tournament

The first annual Pacific Southwest Small Bore Tournament was held on July 23 and 24 at the Glendale Rifle & Revolver Club range in Glendale, California.

Members from twelve rifle clubs were in attendance for the first Glendale Club sponsored major shoot. Eight matches constituted the two-day tournament, which started at eight a. m. Saturday morning and continued through Sunday. Competitors were divided into two classes and medals were awarded to the first three competitors in each match. In addition each winner of a class A individual event received a Trophy which was presented by N.R.A. observer Stanley Linholm, with "Peggy" Burnett, diminutive small bore fan, assisting.

J. O. "Johnny" Miller of Los Angeles continued his grand sweep of all California small bore matches by topping George Rowell of Bell, California by 4 points in the Championship Aggregate. Johnny's win gives him undisputed possession of three State and inter-State Championships this year.

Saturday morning, the opening day of the match, saw L. A. "Pappy" Pope of Los Angeles romp home with the 50-yard metallic sight event with a 399 score. George Rowell scored a 398 for second place honors, followed by Miller with a 397. Poor conditions kept scores down in this event.

Otto Marckmann, and Whitey DeBoer teamed up to capture the two-man team event at 50-meters with a 788, creedmooring Miller and Pope. Third place was won by George Rowell and John McClintock.

The third match, 40 shots any sights at 100 yards was won by Ralph Arnold of the Glendale Club. His score of 397 under mid-day conditions topped Miller by one point. Otto Marckmann of the Glendale Club finished third with 396.

Sunday morning, Johnny Miller shot his way into the grand aggregate lead in the Wimbledon Match. Typical of mid-summer conditions on the West Coast, "things were whoopin it up" at the very beginning of this match. Miller's astounding 198 under the worst conditions ever experienced on the Glendale Range was the high-light of the shoot. E. C. Hamley's 190 was good for second place, with Alvin Fischer of Burbank a close third with a 190. Otto Marckmann of the Glendale Club scored a 398 to win the Dewar event. Hamley was second with 396, and George Rowell third, score 395.

The four man team event was won by R. Burkhardt, George Rowell, John McClintock, and L. H. Dodge of the Los Angeles R. & R. Club, score 1573. Glendale R. & R. Club took second with 1568 and the Burbank R. & R. Club third, score 1560. The match called for 40 shots at 100 yards.

The short range aggregate was won by Otto Marckmann whose score of 1191 nosed out George Rowell of Bell by 3 points. Johnny Miller finished third in the event with 1184.

The Pacific Southwest Championship was an aggregate of the 50-yard Individual, 100-yard Individual, Wimbledon, and Dewar matches. J. O. Miller's 1382 won him the title and the Fray-Mershon Championship trophy. George Rowell of Bell, California scored 1378 for

second place, and Otto Marckmann followed with 1378, being creedmoored by Rowell for the second position.

Due to the co-operation and fine handling of N. R. A. Observer Lt. Stanley Linholm, Statistical officer Harry Johnson, and executive officer Delmer Lord, the shoot moved along with precision, and accuracy.—WALLACE L. ROBBINS.

Vandergrift Carnegie-Illinois Tournament

Attracting 108 top-flight small bore shots from as widely separated points as Connecticut and Michigan, the Vandergrift Rifle Club's first annual shoot went off with a bang. These Pennsylvania boys have developed a splendid organization, and have done it much more rapidly than a new club can usually hope to. With this year's meet a definite "sell-out" it looks as though it will become in succeeding years one of our most popular Eastern shoots, simply on the strength of this initial competition.

The weather on Saturday, July 23, dawned cloudy and murky, a condition ideal for shooting. Ned Moor walked off with the first and second matches of the day, 50-yard forty shot and 50-meter forty shot. With cash paid to high six places, the last man in the first match shot a 400 with 31 X's to earn his money, and beyond this were ten more 400's. And so it went for all four matches on Saturday.

Upon resumption of hostilities after lunch, the cry went up to "Stop Ned Moor". In the third match of the day, the team of Patriquin and Loudon drew first money over the 50-meter course with a 397. Barking loudly at their heels were Bomgardner and Berkheiser. Here would be a good time to say also that in the first match on Sunday, these two teams simply traded places while shooting over the Dewar course. Both teams posted scores of 799, but Bomgardner and Berkheiser outranked Loudon and Patriquin 58 X's to 56 X's. The fourth match was a Dewar Any Sight match in which Francis O'Hare headed a list of five 400 scores with 30 X's, followed by Bill Patriquin and Ernie Pade with 29 X's, Milt Klotz with 28 X's and C. H. Kline with 24 X's. The conclusion of Saturday's shooting found Ned Moor with two Trophies and Francis O'Hare with one.

Sunday brought on "Old Sol" himself, to the extreme discomfort of the shooters. The first match in the morning was the only time that the weather was at all cool, but, as has already been stated, the scores were hot. By the time the second Sunday match rolled around, which was the hardest, 40 shots at 100 yards, the sun had the mirage boiling first rate. H. D. Griffith of Pittsburgh seemed used to the weather and came through with a 398 and 22 X's to win, followed by Charlie Whipple, Bill Patriquin and Ned Moor. The first match Sunday afternoon, a Dewar iron sight affair, saw six places—Patriquin, Moor, Rider, Doyle, Carlson, and Barrett—posting 400's in order given with X's ranging from 30 to 22. The last match to be fired, a Dewar any sight, showed four 400's with Dave Carlson outdistancing the pack with a splendid 34 X possible. Close on his heels were Canfield, Worthen and Henning. This, by the way, was the first and only match in which Bill Patriquin failed to land in the money.

Patriquin also headed the big scramble in the Grand Aggregate of matches 2, 4, 6 and 8 by three points with a total of 1594 to take home the Governor's Trophy for the Pennsylvania Championship. Canfield, H. D. Griffith, and Pade ranked in the order named with totals of 1591. The Iron Sight Aggregate ended with a tie in total score that had the officers of the tournament stopped for a moment or two. Bill Patriquin and Ned Moor both had totals of 1393 with 55 X's; both men posted the same 100-yard scores in the last iron sight match, and not only that, had the same number of X's. In the match preceding, the 100 yard individual, both had the same score—397 with the same X's, 25, but by the virtue of the best score in the last bull on the last stage of this

match, Patriquin nosed Moor out by a whisker. Close on these two sharpshooters' heels came H. D. Griffith and Bomgardner with 1391's. Despite the Akron crew from the West and the New Haven outfit from the East busily battling things out, Patriquin popped up from nearby and ran off with three Trophies and eight medals.

A great deal of the credit for the splendid manner in which the events were run off goes to E. J. Voegtly and his statistical force which was materially strengthened with voluntary clerical help from the local Carnegie-Illinois Steel Corporation plant. The eight Trophies for six individual matches and two aggregates, plus medals, and an eighty percent cash return, together with the splendid new range, made for a satisfied, happy crowd of shooters.—H. E. GASS.

Southeastern and Florida State Pistol Matches

Yes, this was another of those great Florida tournaments! The Seventh Annual Southeastern and Florida State Championship matches were held July 12 and 13 on one of the newest and most popular of the Sunshine State ranges—at Ocala. Heretofore, due to lack of proper facilities elsewhere, the matches have been fired either in Tampa or Miami. With the recent flurry of range-building activity in the state, the shoot should move to a new location each year. In 1939 the new range of the Palmetto Club of Miami will be host.

The competition was as expected, with many near record scores on the popular courses of fire. Mrs. Helene Howard of Miami took the ladies' championship (20 shots slow-fire at 25 yards) with a 196. The Miami Police Team claimed the State Championship in the four-man team match (center-fire, 25 yards) with 1145, 17 points up on their nearest competitors, the Tampa Police.

The Southeastern Individual Police Championship was won by Tampa's popular Ralph Kirk, who had an aggregate score of 854 X 900. Kirk was pushed by Miami's G. E. Baldwin, who scored 850. The Southeastern Open Championship was annexed by Pat Baldwin, also of Miami (this aggregate comprises the .22, .38, and .45 over the N. M. Course), who scored 827, five points up on his team mate C. D. Stanton. Pat Baldwin also won the .45 caliber championship with a 270 over the N. M. Course. The .22 championship over the course was won by Smitty Brown of Tampa, 284. D. C. Bailey of Tampa almost made a clean sweep of the tyro places.

Seventeen matches were fired in the three days, without a single protest. With 126 registrations, including many in competition for their first time, we feel that these matches were exceptional.

The tournament was concluded with a banquet and dance at which time the medals, trophies and approximately \$400.00 in cash was awarded. The newly elected officers of the Florida Police Pistol League are E. P. Clark, Ocala, president; W. E. Hurlbert, Jacksonville, 1st vice-pres.; L. G. Crews, Miami, 2nd vice-pres.; C. L. Theed, Miami, executive officer, and C. A. Brown, Tampa, secretary and treasurer.—C. A. BROWN.

Connecticut Revolver Matches

For the first time in eight years a regularly scheduled match of the Connecticut State Rifle and Revolver Association was completely washed out by rain. This misfortune attended the Ninth Annual Revolver and Pistol matches of the Association, held on the range of the Silver City Gun Club in Meriden, June 26.

Shooting started at noon with a twenty shot slow fire at 50 yards event, .22 caliber. First place went to Edw. Culkin of the Boston Police with 181 points, second J. Q. Alligood of the Coast Guard Academy at New London with 180, and third to Ernest Ferry of Feeding Hills,

Mass., who registered 178. Sixty-eight competitors entered this first match. Number two, 20 shots at 50 yards, .38 caliber, was copped by W. C. Poole of Hartford with a total of 177, Ed Culkin again placing second with 176 and Ferry third with 175. This match was held up some time by showers. The rain made itself felt during the National Course event with .22 caliber arms. After the first stage the heavens opened, but the shooters stuck to it, though by the time half of them had finished the third stage, targets and backers were so wet that they fell off of the frames and the match was called off, there being no sign of the downpour stopping. This match was won by Ernest Ferry with 277 points, second Joseph Rivers of Greenwich with 276 and third Carl E. Kastner of Maplewood, N. J., with 273.

A bank of 18 movable targets was used for the rapid fire stage at 25 yards, these being designed by Herbert Dingee, Director of Revolver Activities of the Association, and built by members of the Silver City Gun Club especially for this match. They worked perfectly and were a credit to the designer and builders. In addition, there were 28 targets for slow fire at 50 yards. Although this was our ninth annual revolver match, it was our first registered tournament and we regret that inclement weather made it impossible to complete all scheduled matches.—EDWARD E. COOKE.

NON-REGISTERED EVENTS

MASSACHUSETTS—With the Marines at Wakefield. "The Marines have landed and the situation is well under control" pretty fairly sums up the rifle end of the matches at Wakefield. The meet at Camp Curtis Guild was a clean sweep for the Leathernecks, who finished high in sixteen of the eighteen matches open to them. And not content with merely winning, they did it so consistently with record-breaking scores over every course that we pause to wonder just how far .30 caliber accuracy can go before the limit is reached. Mayhap some distant or not so distant day we will have a "300 Club" for the elite of the service rifle marksmen who have gone over the National Match course without the loss of a single point. Certainly that goal was nearer during these matches than we have ever had the privilege of seeing it before.

From July 30th through August 7th range records and match records toppled, old standards of what constituted a winning score were excelled and had to be revised. Many an old hand at the game nodded a surprised head at scores and averages that seemed just a bit too high to warrant serious belief. True, conditions on the venerable Massachusetts range were well-nigh perfect—splendidly clear, a bit humid, with little or no wind, and that blowing steadily enough to matter little. However, too much credit must not be given the weather. In the following references to phenomenally high scores it must be borne in mind that all of the firing was done with the Service rifle and service sights—that there were no bull guns about to explain away these fine scores. It must also be recorded, in fairness to those teams that always landed below the Regular Service outfits, that all of the Marine teams as well as the Infantry squad, used "heavy stuff"—commercial ammunition of match quality—while every other group present fired National Match or even regular issue F. A. ammunition. This leaves the Marine Reserves high team of those using service ammo in nearly every event.

The outstanding performance of the whole show was the Hayden Match, in which the Marine squad sent thirty men over the National Match Course with an average of 288.93—practically a 289 average. Consider what this means. The record for the course at Camp Perry in the National Individual is 292, and as low as 281 has won the match in previous years. The National Team Match record, set by the Marines in 1927, is 2838. Here at Wakefield the Marine team winning the Hayden Match scored a total of 2897, and all three of the

Marine entries topped the old Hayden total of 2868. Weather had some relation to the scores, but how those boys could shoot. Of course, no records of such magnitude will be set at Perry this year. Weather just isn't like that on the Lake Erie shore.

Another suprising bit of shooting was that displayed by Sergeant Disco of the Marine team in winning the Cummings Match. The course of fire called for ten shots at 600 yards, to be fired without sighters and the targets not to be marked or pulled until the completion of the string. Disco's remarkable score of 50 with 10 V's led fourteen possibles, of which ten were credited to the Leathernecks. Again, in the Cutting Match, ten shots at 1,000, Marines C. J. Anderson and J. G. Frazer tied for first with 50 and 9 V's each, with possibles to 26th place! Anderson, last year winner of the President's at Perry, outranked Frazer by the position of his single five. A ten-shot possible at 200-yards offhand won the Second Battalion Trophy for W. D. Linfoot of the Marines, and a 1,000-yard score of 50 with 9 V's earned top award for Cpl. W. L. Devine in the 241st Coast Artillery event. The Service rifle record at 1000 yards at Camp Perry is a possible with 14 V's, comparable to a ten shot 7 V tally, which here landed in from 9th to 17th place on the bulletins.

Company F, 182nd Infantry, Massachusetts National Guard won several of the team matches, and the New York Naval Militia took a single of the team events. Other than these and certain individual matches, all of which were restricted to N. G. and civilian shooters, none of the competing groups were able to match the pace set by the Marines.

Despite a delegation of 41 shooters from Connecticut and smaller groups from most of the New England states, civilians were generally conspicuous by their absence. Probably the realization that it would be difficult, if possible at all, to best the Marine aggregation in any of the individual matches served as a deterrent to their putting in an appearance. Be that as it may, the fact is that even with conditions as favorable to top-notch scores as they were, most of the medals awarded to high civilian competitors in the open matches fell to rather low scores, indicating a decided absence of the best of "Down East" civilian talent. Entries in the largest of the matches reached a total of slightly over 150, of which the regular service units made up the great majority.

Seventeen pistol matches were scheduled during the week of the shoot. Unlike the rifle series, no group or individual was able to dominate the whole affair, and representatives of the Coast Guard, Marine Reserves, several city and state police organizations and bank guard teams divided first place honors. In scanning the program it seems that far too many of these pistol matches were restricted to small classes of competitors, so limited in fact that entries suffered more than they would have had the events been open to all comers. True, many would have gone to the strong service groups. However we cannot believe this sheltering of competitors unwilling to go up against stiff competition does the game or the individual shooter any good.

The Wakefield matches, staged by the United Services of New England, have for years provided for New England shooters a week of stiff competition before setting out for Perry. Thus far it has been strictly a military gathering, where service team has competed against service team and the civilian has tagged along farther down on the bulletins. However, in future years there is no reason why Wakefield should not become the most important of the Eastern pre-Perry meets, and draw the majority, instead of a few, of the non-military shooters of the entire New England-New York area.

FLORIDA—West Coast Pistol League. Burglars and second-story men hereby are advised to keep away from the residence of C. Verne Klintworth, Tampa photographer, whose 13-year-old daughter, Evanelle, beat a field of 21 men sharpshooters, June 5, in a pistol match at the police range.

She scored 821 points out of a possible 900 for 25 yards slow fire, 15 yards timed and rapid fire, winning a medal for Class C marksmen in the first tournament of the Florida West Coast Pistol league ever held here. The meet was sponsored by the Municipal Pistol Guards of Tampa.

Miss Klintworth has been actively shooting about a year, but her father began training her when she was a small child. Her score yesterday was only 12 points below that of C. A. Brown, former policeman and winner of the Class A event with 833 points, the highest aggregate of the day. W. L. Hamilton and D. H. Chiles were second and third.—TAMPA TIMES.

OHIO—Junior Instruction Program. Akron, Ohio, expects to continue her past good record on the firing line by recruiting new blood from among the Juniors. Two years ago the senior clubs offered medals and prizes for junior competition and appointed a committee, with a high school teacher as chairman, to work out a schedule and introduce shooting as a competitive sport in the schools.

Several Junior groups were already shooting but without any organized schedule. They were: Canfield's Zeppelin Jrs.; Kelly's A. C. & Y Jrs.; Goodrich Jrs., under Todd Patrick; American Legion Post 209 Jrs., under Taylor and Weekley; and Garfield High School Jrs., under "Pop" Brewbaker. With these as a nucleus a Junior Rifle League was formed with ten teams the first year.

The four most experienced teams constituted a Class "A" group, while the eight newly organized teams made up Class "B". In this latter group each team fired seven matches, one with each of its opponents. The County Championship, represented by a revolving trophy donated by the Zeppelin Arms Co., was decided in Class "A". Here each team fired four matches with each of its opponents or twelve matches during the season.

So close was the race that not until the last match was the championship finally decided when Garfield defeated its nearest rival to win first place and the Trophy. Goodrich Juniors were second, Post 209 third, and Firestone Juniors (new name for old A. C. & Y. Jrs.) fourth.—C. E. BREWBAKER.

WASHINGTON—Big Bore at Fort Lewis. With 251 shooters registered, the three-day meet of the Washington State Rifle Association, held July 2nd to 4th on the Fort Lewis range, was in every way a success. The weather was cool and cloudy and offered no handicap to the riflemen.

Twelve events were programmed, including two aggregates. The latter were taken by E. S. Hicker of Seattle, whose splendidly consistent shooting gave him both of the trophies put up for aggregate winners.

Personnel of the famous 15th United States Infantry—the "Can Do" regiment, recently returned to the states from China—handled the matches, with Lt. Col. Fred L. Walker of that organization acting as executive officer.

CUBA—The Havana-Florida International Matches. After an interesting drive to Key West, sixty-nine pistol enthusiasts boarded the flagship *Cuba* of the Cuban Navy as guests of the Island Government, and set sail for Havana's pistol tournament. The ninety-mile trip was pleasant and the sometimes turbulent waters of the Florida Straits were considerably placid.

To those who enter Havana harbor for the first time, the grim fortress walls of Morro Castle, with the skyline of the city opposite, completes a panorama of striking, imaginative beauty. Entering the land-locked harbor, the *Cuba* docked to the blare of the huge National Police Band, and the delegation was greeted and paraded through the picturesque city to their hotel. As soon as competitors were settled, transportation to the splendid Casino Deportivo range was provided in police radio cars. Thrills but no spills at 90 kilometers per hour through Havana's winding streets!

July 18 found the matches under way, and the first event, slow-fire at 50 meters on the International Olympic target, went to Smitty Brown of Tampa. Match followed match, with Brown, "Doc" Chiles, Ralph Kirk and W. J. Davis, all from Tampa, taking firsts in the four inaugural contests. The more than fifty Cuban shooters proved to be serious threats in every match, but, to everyone's surprise, came to the top in a most unexpected place. The 20-shot 25-yard slow-fire event with the .45s went to Sgt. Godofredo O. Basso of the Cuban Army. In the sixth event Miami, in the person of Pat Baldwin, came to the fore and captured the Camp Perry Course match, and finished up by tucking away the aggregate. The final match of the program, a four-man team event over the National Match Course, fell to Miami's Police Team.

The entertainment provided the visitors during their stay was complete in every detail. A 7-course dinner, with the Police band furnishing the music, sightseeing trips, and a final banquet and dance at Havana's Casino Deportivo Beach Club. Ah, what a life! The Cuban officials are now making plans for the largest matches ever held in the island, to be staged immediately following the National Midwinter at Tampa, in 1939.—C. A. BROWN.

INDIANA—The Annual Outdoor Shoot of the Indiana National Guard and the Indiana State Rifle Association was held at Frankfort, Indiana, July 15, 16 and 17.

Indiana has been staging for several years what has been considered a most excellent large bore rifle and pistol competition, but the shoot this year was much better than any previously held and the attendance the largest ever, approximately 300 riflemen and pistolmen being present. Both the Infantry and Cavalry rifle and pistol squads were present and as usual gave a fine exhibition, and a clear demonstration of what training can do.

The weather conditions were ideal this year. Of course a condition of this kind means excellent scores and many very fine ones were turned in. Probably the best one of the shoot was Col. H. P. Watson's score of 97 at 200 yards standing.

Governor M. Clifford Townsend showed considerable interest in these events and was an interested spectator on Sunday, July 17. On Sunday afternoon all of the shooters were assembled back of the pistol firing line to witness the presentation of medals. Governor Townsend presented the medals to the Indiana rifle champion and the Indiana pistol champion and assured the shooters that they would have his wholehearted support in the promotion of rifle and pistol practice among the military and law enforcement agencies of the State of Indiana.

ILLINOIS—The Piasa Rifle Club held its first annual small bore tournament on Sunday, July 10, on the new outdoor range. The program consisted of five individual matches and one aggregate. We had two Dewar matches, one for tyro and one for senior. Other matches were a forty shot match at 50 meters, iron sights; forty shots at 50 yards, any sights, and 40 shots at 100 yards, iron sights. This program must have seemed attractive enough since 43 shooters from Illinois and Missouri braved the heat and sun.

F. Weatherford of Mt. Vernon, Illinois, did well for himself, winning the aggregate with 1186-31X. He also won the tyro Dewar with a 396 and repeated with 396 to place 2nd in the senior Dewar. To finish off a good day he took first place in the fifty meter with 396.

Richard Dorain of the Glendale, Missouri, Club (St. Louis) was another consistent shooter and winner, placing second in the aggregate with 1178-40X. He also had two firsts, winning the 50-yard match with a 400 X 400-32X and the 100-yard match with a 395-21X.

The complete program was efficiently operated by members of the Piasa Club. The matches were under the supervision of William Woodring, Stephen Meszaros, Edwards Brown and Glenn Shinpaugh. The chief range officer,

Henry Fones, was capably assisted by Ted Bertier, assistant range officer and his crew of target changers.—STEPHEN MESZAROS.

OREGON—Members Match at Medford. Under a smoke clouded sky, with the thermometer hitting the upper nineties, the Medford, Oregon, Riflemen fired their second annual Members' Match, Sunday, July 24, on the Table Rock small bore range. That there is something in the Southern Oregon atmosphere that is beneficial to women shooters was proven once again when the scores were posted. Mrs. Ivan Waddell started things rolling by going straight in the first event, the Dewar, with a 400-27X possible, the second time in the history of the range a Dewar possible has been turned in. Mr. C. C. Gall stepped into third place only two points down, which was plenty good shooting. In the next match, the 11-Carton, Mrs. Waddell kept up her fast pace to the tune of 209, and another first. Mrs. Gall came up for a second in the 50-Meter with a 391, and her consistent shooting totaled up to third place in the Grand Aggregate. So much for the women.

In the Dewar, Ed Lull was runner-up with a 399-20X's, while Shelby Tuttle and Ivan Waddell, shooting side by side, rang up a couple of 50 yard 10-X possibles. Second place in the Carton went to S. M. Tuttle, 199-9X or 208. "Cap" Tuttle is better known in Oregon as the Tyro Champion. Clyde Richmond was right on Waddell's heels in the 50 yard Individual, both with possibles, but Waddell's 24-X's were two too many for Clyde. Waddell clicked again in the 50-Meter for a first place 392, netting him a winning ten point margin in the Grand Aggregate, 1397 X 1420. Second and third aggregate were Shelby Tuttle and Mrs. C. C. Gall, each scoring 1387, with Tuttle having the higher ranking.—IVAN WADDELL.

ILLINOIS—The Veterans of Foreign Wars Rifle Club staged a small bore meet on their new range near Heyworth, July third, programming eight matches in all for the day's shooting.

With overcast skies and little wind, conditions were perfect for the competition. The Black Hawk Rifle Team of Chicago starred in nearly every event as individuals and took as a group the five man Dewar team match with a total of 1976. Second place went to the Illowa Club's entry, with the same score but lacking 20 X's of equalling the Black Hawk tally. Individual events went to Black Hawk R. V. Miner of Chicago, who captured four first place medals and one each to E. K. Waters, Chicago, E. Satterle, East Peoria and G. Fester of the Centralia Rifle Club.

Many compliments were received on our first shoot, and one complaint. The complaint suggested that we advertise our shoot for the 9th of October and hold it on the 8th, not notifying the Black Hawk Rifle Club of the change.—C. L. WOOD.

PENNSYLVANIA—Big Bore Matches at Wilkes-Barre. A 200-yard any rifle event calling for twenty shots on the N. R. A. decimal target featured the rifle shoot sponsored July 24 by the Wilkes-Barre and Stanton Rifle and Pistol Clubs. The shoot, drawing 30 competitors, was staged on the range of the Stanton Club.

Winner was C. H. Pottinger of Newtown, near Philadelphia, with a score of 246 and 8 X's. Equipment used in the event included seven .30-'06 "bull-guns", two .220 Swifts and the balance .30-'06 sporters.—HARRY FROHM.

NORTH CAROLINA—Small Bore Matches conducted by the North Carolina Division of Civilian Marksmanship were held at Fort Bragg, N. C. on Saturday, July 16 with 41 competitors striving to win medals offered in each event. The "Lewis" system of classifying shooters and awarding medals was tried for the first time and was the subject of considerable comment among the competitors. One competitor who was well down the list (last

place in class A) was heard to remark—"Just think, if I had dropped two more points I could have won a medal." Three medals were offered in each event with medals to each team member in the team match.

H. J. E. Reid of Hampton, Va. again "showed his heels to the N. C. boys" by winning the Individual Dewar, 50-meter and 100-yard Individual, besides turning in a possible in the four-man team match. Reid by the way won every individual match in the North Carolina Championships held at Kannapolis, N. C. last May.

In the four-man team event (Dewar any sights) the Hampton, Virginia team gave a neat lesson in shooting to the boys by winning the match with a score of 1593 with Kannapolis second and Reidsville third.—"WRONG WINDAGE."

MINNESOTA—The Second Annual Lake Region Small Bore Shoot. With cool deliberation and expert handling of both iron and telescope sights, Milton Petersen, Jr., of Camp Lincoln, near Brainerd, took high honors during the matches of the Fergus Falls Rifle and Pistol Club, held on the club range, July 10. He paced forty competitors to take the aggregate, 982 X 1000.

H. E. Ripley of Alexandria, A. N. Barnard of Fergus Falls, Vince Campmann of Brainerd and G. E. Monson of Hibbing were gold medal winners in the four events making up the aggregate.

CALIFORNIA—Glendale Night Shoot—Proving conclusively that he is not only eagle-eyed, but owl-eyed as well, Vic Massie proceeded to take the second all night shoot sponsored by the Southern California Small Bore League, held on the Glendale club range, July 9.

In the 20 shot 100 yard match, Vic grabbed off first place with a 17X possible, outranking John McClintock's 16X's and Ralph Miller's 12X's. In the 200 yard match Massie got only 3rd place with 198, 1 point behind Cliff Pierson's blistering 199 and outranked by Oliver Wagg's 198.

At the end of 20 shots on the 100 yard International target, George Rowell and his 197 were sitting well up on top of the heap, 2 points ahead of E. J. DeBoer in 2nd and H. D. Zaring in third. In this, as well as the other matches, fine merchandise prizes were put up for the one-two-three spots and the 7th, 13th and 19th place, regardless of score. Massie slipped to 192 in this match, which was just right to drop him into 13th place and another trophy.

To finish the night in the proper style, Massie also carted home the cash prize for the aggregate of the three matches. George Rowell had the same score, 590, but was outranked by old Owl-Eye Massie. Cliff Pierson sneaked into third place in the aggregate by virtue of a 589.

No sooner do they get done with the after-dark affair than they schedule a big registered shoot for July 23 and 24—the Pacific Southwest Small bore shoot. Headed by Jack Cornell, Vic Massie and Doc Hamley, this League is enlisting a lot of enthusiastic supporters in the west.—JIM CROSSMAN.

OHIO—The Third Ohio Valley Championship Pistol Matches were held under the auspices of the Legion Pistol and Rifle Club of the city of Chillicothe, Ohio, at its out-door range in the City Park in Chillicothe, Ohio, on July 17, 1938.

The grand aggregate was won by R. S. Marshall of Lima, Ohio, with the high score of 927. Second place went to William Lux of the Indian Hill Rangers with a score of 905. Ray Bracken of Columbus, Ohio, with a score of 903 took third, and fourth was Phil D. Butler, Chillicothe, Ohio, with a score of 898. First prize was a silver cup, second and third prizes silver and bronze medals.

The shoot was divided into three classes—championship (high 30%), sharpshooter (second 30%), marksman (remaining 40% of score). The winner of each class took a silver cup and second and third places silver and bronze medals.

Fifty-two shooters attended the match, which was held in cooperation with the Tri-State Pistol League and was supervised by a range personnel furnished by the Col. William Wallace Chapter of the Reserve Officers Association of this city. Major William Moran acted as Chief Range Officer.—F. K. SPETNAGEL.

MASSACHUSETTS—The Massachusetts Rifle Association's sixty-third Annual Free Rifle Match, fired July 17 on the famous old Walnut Hill range in Woburn, Massachusetts, was host to thirty-five offhand enthusiasts, who participated in the thirty shot 200-yard match on the German Ring target. High score went to Paul Landrock, who brought his fine Pope .35 caliber muzzle-loading rifle from Union City, New Jersey to compete in the match. Second place fell to a more modern arm, a Winchester .250-3'000 in the hands of E. G. Clemens of Wakefield, Massachusetts. Their scores were 685 out of a possible 700.

The meet, sponsored by the oldest active shooting organization in the United States, attracted as visitors such famous old-timers as Harry M. Pope, who drove up from Jersey City with author Lucian Carey, W. V. Lowe, John Kaufman, a well-known Schuetzen shot of days gone by, and many another of the dwindling company that made shooting history on the Walnut Hill range before the turn of this century.

WASHINGTON—Offering a challenge to their Dads, the young marksmen of the Vashon Island Junior Rifle Club staged a match recently in which they successfully proved their right to handle firearms by topping the scores of their elders in both a fifty foot and hundred foot indoor match. Under the instruction of John Metzberg the youngsters have been taught the finer points of shooting and safety with firearms, the success of which training was evident in the match that followed.

In the first contest at 50-feet the boys scored a total of 311, while their parents, firing under the banner of the Vashon Island Sportsmans Club, finished with a tally of 243. The story was the same at 100-feet, when the lads took first with 151 against the opposition's 137.

CONNECTICUT—Big Bore Match, July 3 might well have been named "Schneeman Day" on the State Rifle Range at Simsbury when the second big bore matches of the Connecticut State Rifle Association were held. R. E. Schneeman of Jewett City won three out of four matches scheduled and landed fourth place in the other match. Living in Jewett City, Schneeman has been an individual member of our association for a long time. After the matches he will be at Wakefield with the U. S. Marine Teams enroute to the National Matches at Camp Perry.

Due to being held the day before a holiday, in the summer vacation period and with half the National Guard absent at their annual encampment there were only 76 shooters present at these all-day matches.

In the first match, the Foot Guard Special, ten shots standing and ten prone at 200 yards, E. G. Reising, the inventor of the Reising Automatic Pistol, was high with 97. Match number two, the Camp Perry Veterans' match, two strings of rapid fire at 200 yards, went to Schneeman with a 96. The Members' match, 10 shots standing, 5 kneeling and 5 prone, was Schneeman's with 97. The last event, the Lufbury Memorial Match, 20 shots standing at 200 yards, was taken by Schneeman with 98 points.—EDWARD E. COOKE.

HAWAII—Concluding the Honolulu Police Rifle and Pistol Club's five month series of pistol matches staged on their Punchbowl range near Honolulu, two permanent individual trophies for high .22 and .45 caliber aggregates were awarded Staff Sergeant Dale Frazier. Frazier will be remembered by those who attended the Camp Perry pistol matches last year as a member of the Hawaiian Police team.

Coming Events

ARIZONA

October 2: Arizona State Pistol Matches at Casa Grande, Arizona. Sponsored by the Arizona State Pistol Association. For programs write C. H. Hathaway, Box 71, Tucson, Arizona.

CALIFORNIA

***September 11:** 2nd Annual Northern California Small Bore Championship at Richmond, California. Sponsored by the Richmond Rifle and Revolver Club and Richmond Elks. For programs write Ernest J. Martin, 325 12th Street, Richmond, California.

September 11: Oak Park Pistol Club Annual Tournament at Stockton, California. Sponsored by Oak Park Pistol Club. For programs write De. J. Coleman Browne, 902 California Building, Stockton, California.

***September 18:** Southern California Pistol League Match at Los Angeles. Sponsored by the Los Angeles Revolver League. For programs write Lt. J. A. Bartley, Police Headquarters, Los Angeles, California.

***September 25:** 1st Annual Registered Fall Tournament at Glendale, California. Sponsored by the Glendale Rifle and Revolver Club. For programs write J. E. Cornell, 662 Arden Avenue, Glendale, California.

October 2: Alameda Pistol and Revolver Matches at Alameda, California. Sponsored by the Alameda Police Revolver Club. For programs write Captain John M. Stroh, 2247 Central Avenue, Alameda, California.

***October 15-16:** Northern California Pistol Championships at San Francisco. Sponsored by San Francisco Traffic Police Club. For programs write E. J. Dutil, 324 16th Avenue, San Francisco, California.

October 23: Oakland Metropolitan Tournament at Oakland, California. For programs write Jos. Ternes, 838 19th St., Oakland, Calif.

***November 20:** San Francisco Traffic Revolver Club Monthly Match at San Francisco. Sponsored by the San Francisco Traffic Revolver Club. For programs write E. J. Dutil, 324 16th Avenue, San Francisco, California.

CONNECTICUT

September 11: Eastern Muzzle Loading Rifle Championship at Greenwich, Connecticut. Sponsored by the Cos Cob Revolver and Rifle Club. For programs write Eric Bolton, Cos Cob, Connecticut.

September 18: Revolver and Pistol Match at Greenwich, Connecticut. Sponsored by the Cos Cob Revolver and Rifle Club. For programs write Eric Bolton, Cos Cob, Connecticut.

DELAWARE

***September 30-October 1-2:** Delaware Tidewater Pistol Championship Matches at Wilmington, Delaware. Sponsored by Wilmington Marksman's Club. For programs of these events write F. R. Lesney, 106 East 16th Street, Wilmington, Del.

***October 2:** Dewar Course "Xpert" Target Match at Wilmington, Delaware. Sponsored by the Wilmington Marksman's Club. For programs write Franklin F. Palmer, Jr., 210 E. 16th Street, Wilmington, Del.

ILLINOIS

September 11: Dewar Matches at Fort Sheridan, Illinois. For programs write Sherwin Murphy, 4821 Dorchester Avenue, Chicago, Illinois.

October 2: Decatur Pistol Matches at Decatur, Illinois. Sponsored by the Decatur Rifle & Pistol Club. For programs write Chris Kalapis, w10 Bachrach Building, Decatur, Illinois.

October 9: Illinois Small Bore Championship at Fort Sheridan, Illinois. For programs write Sherwin Murphy, 4821 Dorchester Avenue, Chicago, Illinois.

IOWA

***October 2:** Sixth Annual North Iowa Pistol Tournament at Mason City, Iowa. Sponsored by the Cerro Gordo Rifle Club, Inc. For programs write D. E. Wells, Box 262, Mason City, Iowa.

LOUISIANA

September 4: Annual Fall Tournament at Shreveport, Louisiana. Sponsored by the Caddo Rifle & Pistol Club. For programs write H. R. Osborn, Shreveport, Louisiana.

MAINE

September 4-5: Fourth Annual Labor Day Shoot at Damariscotta, Maine. Sponsored by the Lincoln County Rifle Club. For programs write Verne F. Batteese, Damariscotta, Maine.

***September 25:** Maine State Pistol Tournament at Auburn, Maine. Sponsored by Maine State Rifle and Pistol Association. For programs write John M. Lane, 131 Bishop St., Portland, Maine.

MASSACHUSETTS

September 11: 10th Annual Western Massachusetts Championship at Pittsfield, Massachusetts. Sponsored by the Pittsfield General Electric Athletic Association. For programs write H. S. Endicott, 38 Hazelwood Terrace, Pittsfield, Mass.

September 11-12: Arlington Rifle and Pistol Club Tournament at Woburn, Massachusetts. For programs write James A. White, 172 Beech Street, Waverly, Massachusetts.

MINNESOTA

September 18: Mankato Rifle Club Fall Small Bore Tournament. For programs write B. Buckley, 221 Nicollet Avenue, Mankato, Minnesota.

NEBRASKA

September 18: 360 Rifle and Pistol Club's Annual Matches at Omaha, Nebraska. Sponsored by the 360 Rifle and Pistol Club. For programs write T. H. Dawson, 6936 Florence Boulevard, Omaha, Nebraska.

NEW JERSEY

September 11: Annual Small Bore Rifle Tournament at Raritan, New Jersey. Sponsored by Somerset County Fish and Game Protection Association. For programs write W. Goldsack, 355 Prospect Avenue, Dunellen, New Jersey.

NEW YORK

September 25: 5th Annual New York Central Athletic Association Rifle Club Small Bore Tournament. For programs write O. E. Whitbeck, 122 Morris Street, Albany, New York.

***September 25-October 2:** Long Island Rifle and Pistol Association Fall Championship at Woodbury, L. I. For programs write H. J. Steinberger, 150-47 87th Road, Jamaica, Long Island, New York.

OHIO

September 18: East Liverpool Rifle Club Fall Small Bore Matches to be held on the range ten miles north of East Liverpool on Route #7. For programs write E. C. Roush, 1052 Ephraim Street, East Liverpool, Ohio.

September 18-October 9: Cuyahoga Marksman's League Outdoor Program at Cleveland, Ohio. For programs write R. B. Clapp, 2068 Richland Avenue, Lakewood, Ohio.

September 18: Grove City Second Annual Small Bore Tournament at Grove City, Ohio. Sponsored by Grove City Sportsman's Rifle Club. For programs write Pat Grooms, Box 262, Grove City, Ohio.

***October 1-2:** Second Annual Outdoor Pistol Tournament at Akron, Ohio. Sponsored by the Summit County Pistol League. For programs write J. C. Kelsey, 133 Highpoint Avenue, Akron, Ohio.

October 1-2: Mead Second Annual Trophy Small Bore Rifle Matches to be held on the Mead range. Sponsored by Mead Rifle & Pistol Club. For programs write Roy Kern, 431 Laurel St., Chillicothe, Ohio.

PENNSYLVANIA

September 3-4-5: 7th Annual Small Bore Tournament at Hummelstown, Pennsylvania. Sponsored by Central Pennsylvania Rifle Club. For programs write George Hoffman, 220 S. 29th Street, Penbrook, Harrisburg, Pennsylvania.

September 5: Labor Day Small Bore Shoot at Harmony, Pennsylvania. Sponsored by Zellenople

Rifle Club. For programs write Martin W. Neuhausen, 337 East New Castle St., Zellenople, Pennsylvania.

September 18: McKeesport Sportsman's Association Small Bore Tournament at McKeesport, Pennsylvania. Sponsored by McKeesport Sportsman's Association. For programs write R. Johanides, 1902 Grandview Street, McKeesport, Pennsylvania.

September 18: 3rd Annual All Pistol and Revolver Tournament at York, Pennsylvania. Sponsored by the York County Gun Club. For programs write R. C. Geesey, 134 S. Duke Street, York, Pennsylvania.

September 25: Post Season Small Bore Tournament at Erie, Pennsylvania. Sponsored by Lawrence Park Rifle Club. For programs write J. L. Klomp, 2417 Peach Street, Erie, Pennsylvania.

October 1: 7th Annual Lehigh Valley Small Bore Fall Championship at Allentown, Pennsylvania. Sponsored by Bear Rock Rifle Teams. For programs write W. F. Gutekunst, 220 N. 9th Street, Allentown, Pennsylvania.

TEXAS

***September 17-18:** Southwestern Pistol and Small Bore Rifle Tournament at Dallas. Sponsored by Trinity Rifle Club. For programs write H. Frank Townsend, 6151 Palo Pinto Avenue, Dallas, Texas.

November 7: First Annual Small Bore Meet at Plainview, Texas. Sponsored by the Plainview Rifle Club. For programs write Henry A. Roberts, Box 948, Plainview, Texas.

VIRGINIA

October: Montgomery Rifle Club Tournament at Elliston, Virginia. For programs write D. M. Barnett, Elliston, Virginia.

WISCONSIN

September 18: Rifle and Pistol Tournament at Janesville, Wisconsin. Sponsored by the Janesville Rifle and Pistol Club. For programs write Harry J. Grimesey, 614 McKinley Street, Janesville, Wisconsin.

September 25: Milwaukee District Fall Small Bore Matches on the County Line Range. For programs of these events write J. J. Ring, 1842 North 83rd St., Wauwatosa, Wisconsin.

October 2: Illinois-Wisconsin Inter-State Dewar Team Match at Racine, Wisconsin. For programs write Joseph J. Ring, 1842 N. 83rd St., Wauwatosa, Wisconsin.

* Indicates Registered Tournaments.

STOLEN GUNS

Harrington and Richardson .22 revolver, D-7216 and a Colt automatic, .32 cal., 144677. Stolen from the residence of Ray T. Bayless, 3651 Traynham Road, Shaker Heights, Ohio.

Colt Officers Model Target .22, broad hammer spur by Sabyan. Serial 16903. Notify Albert B. Pacini, 16 Collamore Terrace, West Orange, New Jersey.

1 Winchester rifle, model 52, caliber .22, 104 stamped on top of stock near the butt plate, receiver numbered 34800.

1 U. S. rifle, model 1922 M2, caliber .22, 24 stamped on top of the stock near the butt plate, receiver numbered 5209.

1 U. S. rifle, model 1922 M2, caliber .22, receiver numbered 18583.

1 Freeland scope stand.

1 Fecker prismatic spotting scope, 25X, painted grey with SGT. R. C. Sommer, Carnegie Tech in yellow letters. Notify Sgt. R. C. Sommer, Carnegie Inst. of Technology, Pittsburgh, Penna.

CHALLENGES

"The Santa Fe Super-Chiefs" Rifle team of Topeka, Kansas, would like matches with other Railroad rifle teams. All members of the Santa Fe team are N. R. A. members and members of the Capital City Rifle Club. Outdoor matches will be accepted as long as the weather will permit. We will then be open for 50 foot gallery matches. Write Lawrence E. Brooks, Team Manager, 1419 Van Buren St., Topeka, Kansas, or in care of the Superintendent of Shops, A. T. & S. F. Ry., Topeka, Kansas.

DOPE BAG . . .

Conducted by F. C. NESS

New Rifle Shooter's Coat. A departure from previous Duxbak styling is the new Style 66 Utica Rifleman's Coat. The new material is heavy sand-mixed cottonade. This is attractive and adequately substantial to combine well with the heavy padding. Made with wide bellows pleat running from top of shoulder to stitched-down half belt. No vent. Handy-slant pockets in back of skirt, with button flaps. Standard officially approved N.R.A. padding on shoulders, elbows and sling position. Retail, \$5.00. Made by the Utica-Duxbak Corp., Utica, N. Y.

A Shooting Mitt with a host of claims came in from the Stephenson Bros. Glove Co., of Portland, Oregon. The claims: "It is air cooled. Reduces barrel whip and heart vibration. Protects the hand from the strap at all angles. Made of wooskin so the padding will not form bumps. Sights can be set on the .30-caliber with glove on hand. Plenty of room for big hands." Excepting the debatable ones on whip and vibration, these claims are justified. It is of simple open construction and feels comfortable. The open end, the open palm and the opening at the fork of the hand justify the air-cooled claim. The padding is not bulky where the grasp is hardest, but it is very soft and does not seem to roll together. The back is one well-padded piece and the bottom pad, inside, protects the wrist from the sling. It is not only soft, but it is unquilted, hence not stiff. A well-designed shooting mitt.

Hawley Helmets are known the world over, but it is not generally known that Jesse Hawley, former Dartmouth coach, is responsible. We have received a fine one, labelled, "Military Khaki Hawley Helmet". It is smooth and hard in finish, well ventilated, light and comfortable. Very practical and serviceable, but equally dressy and classy. The khaki-tan cloth cover is silky, like a very fine gabardine. The metal eyelets and strap are chocolate brown, making it a very pleasing number in color-harmony as well as in style.

Shooter's Mitt. A bulky, but soft, heavily-padded, but well-ventilated, shooting mitt, of No. 1 grain horsehide and sheepskin, has been received, in long and short models, from Basil Tuller, Galeton, Pa. Mr. Tuller works in a glove factory and has ample facilities. At the same time he makes his mitts by hand and can furnish extra-small, extra-large and right-hand variations to special order. His standard size seems to fit well all normal hands, sizes 7 to 10 inclusive. Prices are \$1.50 each, three for \$4.25 and six for \$8.00.

The Gray Chemical Co., Roulette, Pa., sent in a large, full-quart size, can of "L-B-46" inert mixture which has proven very desirable as lead-pot blanket while casting bullets. It can be used over and over, and hence is inexpensive.

L. E. Wilson, proved to us he has a standard provision for trimming the .38 Special case on his Universal Shell Trimmer by sending the parts for trial. These were a holder for the cartridge and a long threaded stop rod for proper operating length. This gadget is important, because it assures a uniform case length for uniform crimping of the revolver cartridge. With a holder for the .45 A. C. P. Caliber this outfit will also properly trim that cartridge and thus insure correct seating of the handload in the pistol chamber.

Cramer Bullet Mould Co., has a pressure dipper for filling five-cavity gang molds (also made by Cramer) which is said to make possible the casting of perfect bullets "every time". If that proves out, Carl B. Cramer really has something. His molds are excellent.

TRADE DOPE

Matched Sets of drills and grinders are being introduced by the Speedway Manufacturing Co., of Cicero, Illinois. There is a motor grinder (\$5.95) the size of an apple and a power drill (\$7.95) the size and shape of a pocket revolver and five accessories (grinding wheel, brush, burr, drill and polishing wheel) all in a neat steel case at \$14.95. This is the Speedway No. 250 kit. The components value would total \$17.50. The grinder operates at 20,000 r.p.m. and the drill, rated for 1/4-inch steel, operates at 1,000 r.p.m. There are now a number of miniature electric outfits on the market, among which the Speedway is a leader in appeal. I intend to get the No. 129 grinder, the No. 69 drill and the No. 229 combination stand for machine-work application of these small, power tools.

South Bend Lathe Works, have a new catalog, No. 46-A, which describes their new 12-speed, 9-inch swing lathe and gives information on shop work. It is issued free from their Technical Service Department at South Bend, Indiana. The new lathe was designed for machining small-diameter metal parts with precision. It takes 38 attachments for a variety of jobs. It has a 1/3 H.P. motor and is equipped to provide a range of speeds, and to machine at high speed. Range is from 40 to 1200 r.p.m., thread cutting from 4 to 112 per inch, and its twin gear reverse arrangement takes care of left or right hand screw threads. Get your own copy for further details.

New Bullets. The Bond-Resser design of molds are now also available in .44-caliber, Modern-Bond No. E-429. It is made on the order of the H-358 Resser bullet which has been a good one in the .38 Special and .357 Magnum. Mr. Resser uses 3.8 grains No. 6 pistol powder in the .38-Special and 6.0 grains in the .44 Special behind these bullets, with Winchester Staynless primers. In our .357 Magnum rifle they require exactly 14.0 grains of No. 2400 powder for accuracy. They will not group well with 13.5 or 14.5 grains.

H. Guy Loverin is experimenting with a new round-nose design, having three grease-grooves, in the .357 Magnum revolver, in an attempt to reduce leading at high velocities. This 160-grain Loverin-Bond bullet No. K-358677 does as well in our .357 Magnum rifle as the standard Bond-Ness bullet. Both of these latter designs require 14.5 grains of No. 2400 for accuracy in our rifle.

Golden Lubricant is marketed by Earl Naramore, probably with or without graphite as the purchaser may desire. It is claimed that the 2% content of colloidal graphite is not enough to cause the usual graphite ring at the breach of the revolver barrel when Golden Lubricant is used as a base wad and in heavy handloads. We are only guessing that it is principally Ceresine wax.

2-Line Checkering Tools for spacing 16, 18, 20, 22 and 24 lines to the inch are now available from Frank Mittermeier. The finer ones should work well on plastics as well as on hard, dense wood. The first three, coarser, sizes are also available in 3-line cutters. The latest product, now being developed by this progressive firm, is rubber-bound abrasives for polishing wheels.

T. G. Crain, Altoona, Pa., says he is sending in a Pechar 1 1/2-inch target scope with 10X or 15X magnifications using the same eye piece. Also 1/8-minute clicks in the mounts. Sounds interesting from here.

Model 39A is the latest version of that smooth-action, solid-forestocked, lever-operated

Marlin repeater, which has been a very popular small-game and plinking rifle among .22 rim fire fans. It started its career nearly 50 years ago as the Marlin Model 1891, and then became, successively, the Model 1892, Model 1897, Model 39 and finally the present Model 39A. This new one has a bigger modern buttstock of improved design, with a larger buttplate of light unbreakable material, and a longer semi-beaver tail forestock for a comfortable grasp and improved control. The barrel is round, tapered and 24 inches long. Weight, 6 1/2 pounds. Price, \$29.75.

.25-20 New Service Colt revolver was made by Harry Dickerman of 45 Comstock Ave., Buffalo, New York, by converting the standard .45 Colt caliber to the rifle size. He made six bushings for the cylinder chambers snug enough for a press fit. He reamed these for the .25-20 Repeater cartridge, allowing .003-inch clearance in each chamber, and fitted a .25-caliber barrel. He claims flatter trajectory, better holding and grouping and much lighter recoil have served to make it a much more efficient side arm for small game and plinking.

Stewart-Valentine Co., San Francisco, Calif., has some neatly packaged "Stock Finish", "Bullet Lubricant" and "No-Lead". The Stewart No-Lead wax is melted and the bullets of loaded cartridges are dipped in it. If a very fine film of wax is desired Carbons cleaner is added to the hot wax. The Stewart bullet lubricant comes in hard, medium and soft grades for different climates. Our sample hollow stick is the 4 x 2 (medium). The Stewart stock finish comes in a two-inch screw-top jar. It contains a pigment, for color-control, and oil. We discovered the oil on top when we opened it and caught it on our gabardines.

Wasson Clip-on sighting apertures for pistol shooters, have been improved by incorporating a hinge in the clip. The light-ray shield (with its series of apertures of selective sizes and positions) is now adjustable for angle as well, because of this hinge. The price is \$1.75. Complete shell frames and hook-ons are also available at the same price. The characteristic feature of all Wasson models is the top hinge which permits swinging the orthoptic disc upward to eye-brow height and thus out of vision while the shooter is not aiming.

J. B. Crawford, Omaha, Nebraska, sent us some wadcutter .45-caliber bullets for the pistol. Previously we had run into 40% jams when departing from conventional designs of lead-alloy bullets in the .45 A.C.P., but we had very few malfunctions with the Crawford bullets. Our next step was to get his mold for further trial. This wadcutter works very well over the N.M. course in two pistols here, but only fairly well in my own McDonie-Colt pistol. The general Bond-Ness shape is modified but slightly in this design, with a narrower wadcutter shoulder and a rounded, instead of sharp, nose edge. It has one wide grease groove.

Neat Pistol Stocks for the Woodsman were brought back from Dayton by Fred Hakenjos. They are made of unbreakable warp-proof plastic; in fact, the same material as is used in Parker fountain pens. Molded smooth to appear polished, they are very attractive in their deep mottled brown color. They can be trimmed and checkered if the owner should want to make slight alterations. The left stock has a slightly sloped thumb rest and a palm shelf. The right stock has a swell in its middle and a bottom flare to fit the palm. At the same time they are of neat proportions; not large or bulky. Very similar to the Strine walnut stocks previously praised by this department. These are by the Gaskell Grip Co., of Wellston, Ohio, and they are sold by the Zeppelin Arms Company. Price \$5.00.

Lee Center Dots are not new as an idea but T. K. Lee has unquestionably developed a new interest in the dotted cross-hair reticule, and they have become very popular among target shooters and testers who use a combination of relatively high magnification and very fine cross-hairs in their sighting scopes. He makes these dots as small as $\frac{1}{2}$ inch, $\frac{3}{8}$ inch and $\frac{1}{4}$ inch in coverage at 100 yards, all smaller than the standard X-ring for that range. He seems to be chiefly interested in providing this service for shooters, because his charges are too moderate to be monetarily profitable to him. He can also put three 1-inch dots on the vertical wire for small-game shooters, which is Tom Samworth's ideal reticule for practical field shooting with the high-trajectory .22 rifle. Lee has even installed enormous dots in low-power hunting scopes, upon request. This latter arrangement is someone's ideal for short-range work on charging game, particularly lions.

Savage Over and Under Model 430, gauge 20; barrel-length, 28; upper, full; lower, modified, is what the tag said. For a low-price vertical double it was very easy to operate. Not stiff at all, except the cocking lever. The pull was adequately light in both triggers, it being 6 and 6 $\frac{1}{2}$ pounds. The finish and general appearance was very neat. The gun also mounted well. The mechanism seemed quite adequate with its two heavy hammers and a long coil spring for each, guided on a rod. I particularly liked the rod engagement of the top safety. To make it non-automatic this rod could be removed or merely shortened sufficiently. The forestock fit the gun well enough to be entirely practical without touching the barrels on the right side. In shape it was amply deep but too abruptly flat above its rounded bottom to fit my hand comfortably. It did, however, permit adequate control of the piece. The buttstock had better lines and was more closely fitted and also it was joined solidly to the receiver with a stock bolt. The drop was about $1\frac{1}{2} \times 2\frac{1}{2}$ inches with a pitch-down of not over an inch at the muzzle. These are good average dimensions. A Jostam red-rubber recoil pad was fitted to the butt, leaving a pull length of $1\frac{1}{4}$ inches to the front trigger. The pistol grip and forestock grasp were plainly but neatly checkered.

The receiver was neat in its lines and its blued finish, but it appeared to be unnecessarily heavy. The trigger guard was an auxiliary part turned into the base-plate of the action on its integral threaded stud in front and held in the stock recess at the rear by a small screw. The top break-lever cocked both hammers and pushed the safety slide back to engage and hold down both triggers directly. When the barrels were closed they pressed in a spring stud which released the top-lever. Both hammers reached to the top of the receiver but the firing pin for the lower barrel was struck by only the bottom portion of the right hammer.

The lug on the bottom barrel hooked under the heavy hinge pin, in the bottom of the receiver and about $\frac{1}{2}$ inches forward of the standing breech. At the breech end, on the sides of the barrels there was a recess for the locking lugs which sloped upward. They were located approximately between the two barrels. The engagement strain and friction was apparently all on the bottom of the slope which was about $\frac{3}{4}$ inch deep. This is adequate as very little strain is imposed on them and their slope should provide a wedging effect to take up some of the play which is almost certain to develop. The extractors were between the two barrels, the bottom shell being engaged on top of its rim and the top shell being engaged at its bottom edge. Two plain ribs joined the barrels on either side. The workmanship and fitting throughout was no better than could be reasonably expected in a production gun designed to sell at a popular price.

We tried several loads at 20 yards for extreme spread and found the bottom barrel patterned most closely (18-inches) with Federal Monarch 2 $\frac{1}{2}$ -inch cases and an ounce of No. 8 chilled pushed by 2 $\frac{1}{2}$ drams of powder. This

gave very uniform patterns at 40 yards, with an average of 207 pellets in the 30-inch circle. A count of 381 pellets in the load made the mean pattern 54.33%. The top barrel did its best at 20 yards (16 inches) with the same load in Western Expert (2 $\frac{1}{2}$ -inch) cases. These also were uniform in performance at 40 yards with 287 hits in the 30-inch circle. With a pellet count of 446 in the Western loads the mean 40-yard pattern was 64.35%. The Model 430 has 2 $\frac{3}{4}$ chambers, but the 2 $\frac{1}{2}$ -inch cases gave less spread at 20 yards and were chosen on that account for the 40-yard test.

Ithaca Model 37, standard grade, 12 gauge, modified choke, with 28-inch barrel was obtained as an efficient upland gun. It is not only murderous in its effective spray of shot but it is easily carried. It weighs very little more than my 6-pound 28-gauge Parker. Its light weight makes its recoil unpleasant when its 2 $\frac{3}{4}$ -inch chamber is filled to capacity with a cartridge loaded to capacity.

As will be noted below, such high-power loads will give effective duck patterns with No. 6 and No. 4 shot in this modified choke, and it might prove to be even a long-range shotgun with No. 3 Lubaloy shot. For all that, it is a light-weight upland gun giving ample spread and not too much recoil with short light loads of fine (No. 7, No. 7 $\frac{1}{2}$, or No. 8) shot. Such short light loads of No. 8 shot would also make it practical for Skeet. A thick recoil pad or a rubber boot on the butt would adapt it for trap-shooting with 1 $\frac{1}{4}$ ounces of No. 7 $\frac{1}{2}$ chilled shot. It is a legitimate approach to the all-around shotgun because of its ability to pattern well with heavy loads.

At 20 yards it indicated a 55% performance ($\frac{1}{2}$ choke) with the trap load of 3 drams and 1 $\frac{1}{4}$ ounces of No. 7 $\frac{1}{2}$ chilled, in Federal Monarch cases. The spread was 18 $\frac{1}{2}$ inches. With 1 $\frac{1}{4}$ ounces of No. 6 chilled and 3 $\frac{3}{4}$ drams in Federal Hi-Power loads its spread was only 15 $\frac{1}{2}$ inches, or nearly a full-choke performance. This load averaged 192 pellets in the 30-inch circle at 40 yards, and an extreme variation of but 18 pellets for a pleasing uniformity. That one low-count pattern was too close to the top of the paper or it also would have been higher than 182, I believe. The average per 3-inch square was 2.45 hits at 40 yards. The pellet count was 267 making the mean pattern 71.9%.

With that always-reliable Peters Target load of 3 $\frac{3}{4}$ drams and 1 $\frac{1}{4}$ ounces of No. 4 chilled, we had even better results, with a full-choke spread of only 15 inches at 20 yards. This load was extremely uniform at 40 yards. The low pattern gave 131 hits and the high pattern 138 hits in the 30-inch circle. The average was 1.71 hits per 3-inch square. With a pellet count of 185 in the load the mean pattern was 72.4% at 40 yards.

Both these full-power heavy loads leded the barrel breech badly. Hence I expect a 75% to 80% average with No. 3 Lubaloy coated shot which should reduce the bore leading. This M-37 Ithaca has one of the best-patterning modified chokes I have seen.

Shotgun Question—I have a Winchester M-12 shotgun, full choke. I have been informed that this gun is not suitable for upland game, such as rabbits and partridge, and that I should get a gun with a modified choke.

Now the question is this: Would shooting scatter loads in this gun equal the performance of a modified-choked gun shooting regular loads? Would their killing effect be the same at all ranges? Also is the new Winchester Proof-Steel shotgun barrel equal to their former nickel-steel barrel?—J. DeM.

Answer: I consider the new Winchester Proof Steel superior to the old Winchester nickel steel.

A full-choke barrel is one which shoots 70% patterns in the 30-inch circle at 40 yards. At 20 yards the extreme spread should be less than 18 inches. For any shooting purpose up to 30 yards you should use the scatter loads which usually work well in the full-choke barrel.

I would, however, not depend on these loads beyond 35 yards. Even at 30 yards you will get an occasional blown pattern and a density too thin to be effective at that range. The scatter load in your full-choke should be better than the modified choke at 25 yards, but at 35 yards I would prefer the modified choke, which is 60% in the 30-inch circle at 40 yards. That would be about right for your purpose if you want to use it at all ranges.

Another way to increase the spread is to use short shells in a long chamber as this sometimes will effectively open the pattern.

If you like to experiment you could cut $\frac{1}{2}$ inch off the muzzle and then pattern the gun to learn the effect. This might give you exactly what you want. If it does not you could cut another $\frac{1}{2}$ inch and finally if necessary you could have fitted the Cutts Compensator or Poly Choke.

600 Yards and the .250 Savage. Somewhere in my notes I found a record of some 600-yard shooting with the .250 Savage in which mention was made of a 20-inch group and a required elevation of 23 minutes for that range.

Having a 9-inch-twist rifle as well as the standard 14-inch twist in that caliber, we tried some 600-yard shooting at Camp Simms and at Quantico. To determine the long-range elevation we also did some short-range shooting. Our load was Western Super-X loaded with the 100-grain Lubaloy open-point expanding bullet at an m.v. of 2910 f.-s., according to the maker's figures. They give it a midrange trajectory height of 2.66 inches over a range of 200 yards. This would indicate a drop of 10.64 inches and a required elevation of 5.08 minutes of angle for 200 yards.

Using the M-54 Winchester with 14-inch twist, we had 19.0 minutes elevation on the Weaver scope when we fired at 200 yards. The impact was 27 inches above aim, whereas it should have been 38.5 inches high. That would indicate a gravity drop of 11.5 inches (instead of 10.64 inches) over 200 yards for that load.

At 600 yards 19.0 minutes elevation fell nearly 2-minutes short, the angle required for zero being 20.83 minutes. At that range the group measured 15 $\frac{1}{2}$ inches. Horizontals were 14 inches and verticals 15 inches. The muzzle zero showed 1.86 minutes left windage on the sight, but the group blew an inch right of aim at 200 yards, or (based on expected strike) a total of 4 inches right. At 600 yards the impact was 6.25 inches (1 minute) left, or about $\frac{5}{2}$ inches right of the expected strike. At the Marine range the 600-yard shooting was checked with 8 shots. The horizontals were 17 $\frac{1}{4}$ inches and the verticals, 13 $\frac{1}{2}$ inches, giving a group size of 18 $\frac{1}{2}$ inches. The required elevation, indicated by the sight adjustment, impact and point of aim, was 21.88 minutes of angle.

The other rifle was a Model-70 Winchester with 9-inch twist. We had 19.3 minutes on the Weaver scope and the impact was 14.9 inches lower than the expected strike at 200 yards. At 600 yards the required elevation was 22.72 minutes. The group measured 19 inches, with 16 $\frac{3}{16}$ inches horizontal spread and 12 inches vertical spread. The muzzle zero showed 4.60 minutes left windage on the sight. The impact was 4.00 minutes left at 600 yards, which agrees.

At Quantico we put all the elevation we could get on the Weaver 440-C scope. Our shooting at 50 feet indicated this was 25.7 minutes. The required elevation at 600 yards was 24.2 minutes, the impact being 1.5 minutes above aim at that range. The group measured 19 $\frac{1}{4}$ inches, with extreme horizontals of 13 $\frac{1}{4}$ inches and extreme verticals of 17 $\frac{1}{4}$ inches.

Our minimum elevation required for zero at 600 yards would indicate that this 100-grain bullet drops 151 inches between the muzzle and the target. The maximum elevation indicated a total drop of 152 inches. The average for both rifles is 137 inches drop over 600 yards. The last time we tried the .270 Winchester 100-grain load the 600-yard drop indicated was about 70% as much, or 96 inches.

(Continued on page 46)

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2. V. Z. Canfield, Mogadore, Ohio...3153

"B" CHAMPIONSHIP An Aggregate

1. Wm. Patriquin, Ernest, Pa.....1592
2. V. Z. Canfield, Mogadore, Ohio...1589

50-YARD, IRON SIGHTS

1. C. F. Rider, New Kensington, Pa.....400—31x

SHORT RANGE DEWAR Any Sights

1. Wm. Patriquin, Ernest, Pa...399—32x
2. V. Z. Canfield, Mogadore, Ohio...399

50-YARD, ANY SIGHTS

1. V. Z. Canfield, Mogadore, Ohio.....400—28x
2. Bob Lautsen, Port Clinton, Ohio.....400—28x

ZEPPELIN CHAMPIONSHIP An Aggregate

2. Wm. Patriquin, Ernest, Pa.....2765

DEWAR INDIVIDUAL 50 and 100 Yards

1. C. F. Rider, New Kensington, Pa...399

100-YARD, IRON SIGHTS

1. James Latimer, Akron, Ohio...397—28x
3. E. N. Moor, Detroit, Mich...396—19x

50-METER, IRON SIGHTS

1. E. N. Moor, Detroit, Mich.....399

50-METER TWO-MAN Iron Sights

1. Wm. Patriquin, Ernest, Pa. }397
- Ray Loudon, Butler, Pa. }

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2. James Hale, Akron, Ohio...591—25x

DEWAR DOUBLES Iron Sights

1. C. Westfall, Athens, Ohio } 798x
- E. N. Moor, Detroit, Mich. }

50-METER, ANY SIGHTS

1. Claude Westfall, Athens, Ohio.....
2. Wm. Patriquin, Ernest, Pa.....



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FIRST ANNUAL PACIFIC SOUTHWEST TOURNAMENT

Glendale, Cal.—July 23-24

50-YARD, IRON SIGHTS

1. A. Pope, Los Angeles, Cal. 399—24x
2. J. O. Miller, Los Angeles, Cal. 397—24x

WIMBLEDON, ANY SIGHTS

1. J. O. Miller, Los Angeles, Cal. 198

DEWAR, IRON SIGHTS

1. Otto C. Marckmann, Pasadena, Cal. 398—21x

SHORT RANGE AGGREGATE

1. O. C. Marckmann, Pasadena, Cal. 1191
2. J. O. Miller, Los Angeles, Cal. 1184

AGGREGATE

1. J. O. Miller, Los Angeles, Cal. 1382
2. O. C. Marckmann, Pasadena, Cal. 1378

ILLINOIS STATE ASSOCIATION MATCHES

Fort Sheridan, Ill.—June 26

GRAND AGGREGATE

1. V. Miner, Chicago, Ill. 784
2. Russel Wiles, Jr., Chicago, Ill. 781

50-YARD, IRON SIGHTS

1. E. K. Waters, Chicago, Ill. 200

METER COURSE, ANY SIGHTS

50 Meters & 100 Yards
1. Russel Wiles, Jr., Chicago, Ill. 390
2. R. V. Miner, Chicago, Ill. 389

FIRST ANNUAL VANDERGRIFT TOURNAMENT

Vandergrift, Pa.—July 23-24

PENNSYLVANIA SMALL BORE CHAMPIONSHIP (AGGREGATE)
1. Wm. Patriquin, Ernest, Pa. 1594
2. H. D. Griffith, Pittsburgh, Pa. 1591

AGGREGATE, IRON SIGHTS

1. Wm. Patriquin, Ernest, Pa. 1393
2. H. D. Griffith, Pittsburgh, Pa. 1391

50-YARD, ANY SIGHTS

1. Leo Barrett, Akron, Ohio. 400—33x
2. James Hale, Akron, Ohio. 400—33x
3. Wm. Patriquin, Ernest, Pa. 400—32x
4. Allison Tarr, Verona, Pa. 400—32x

100-YARD, IRON

1. H. D. Griffith, Pittsburgh, Pa. 398

50-METER DOUBLES

1. Wm. Patriquin, Ernest, Pa. } 397
Ray Loudon, Butler, Pa. }

DEWAR, ANY SIGHT

1. Wm. Patriquin, Ernest, Pa. 400—30x

DEWAR, IRON SIGHT

2. V. Z. Canfield, Mogadore, O. 400—29x

Flash from Racine, Wis.!

Marshall Grosskopf of Pella, Wis., shooting SUPER-MATCH, won five matches in the registered small bore shoot held at Racine, Wis., August 6th and 7th:—the B. & L. Aggregate, score: 1989 x 2000—the 100-Yd. Any, score: 398—50-Yd. Iron, score: 400—100-Yd. Iron, score: 396—and the Dewar, Any Sights, score: 400. E. K. Waters of Chicago, shooting SUPER-MATCH, won the aggregate of the Dewar Iron and Any Sight matches, score: 795 x 800.

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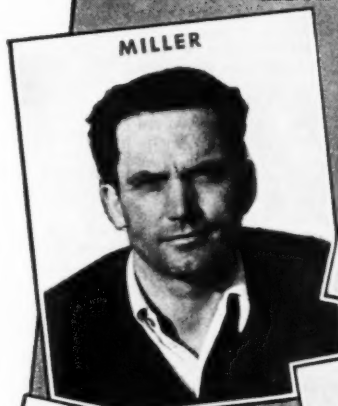
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Varmint-Rifle Accuracy. The .22 Varminter (.250 Savage necked) was tried by E. G. Little of Los Angeles, and he calls it a .22 Long Rifle, .22 Hornet, .22 Lovell and .220 Swift combined. Their first trial load of 25 grains HiVel No. 3 and the 46-grain Hornet bullet put nine shots under a half-dollar. "Miller" was his partner.

When J. B. Smith's custom-load arrived they sighted in on the X-ring of the 100-yard target at 50 yards. Then they moved it back to 100 yards and finally to 200 yards, shooting 10 shots at each of these ranges with the same sight zero and using the same aiming point. There was some wind, which made it a horizontal group, but no bullet cut the 9-ring. In fact, there are only seven "nines" in the 2 3/4-inch total group, and only one shot below the 10-ring; none above it. This marvelously flat-shooting load was the Sisk 40-grain Express bullet at 4400 f.-s. Little found this load bucked the wind up to 300 yards as well as did the 50-grain Sisk at 3600 f.-s. and shot to practically the same zero at all ranges, 50, 100, 150, 200, 250 and 300 yards.

"Miller" of Pasadena chambered the M-54 for this .22 Varminter, which was fired from sand-bag rest using a 15X Super-Targetspot for the business of aiming. A week later 40 grains of No. 4320 powder was tried behind the 40-grain Express bullet, and the cold barrel put all five shots in the 75-foot bull at 200 yards, using the original zero. At 300 yards the impact is 7 inches below aim using the 50-yard zero. The five shots with this load at 100 yards are at 2 o'clock in the 10-ring of the 100-yard target, and the group measures 3/4 inch. For shooting over all ranges up to 300 yards Mr. Little places this .22 Varminter caliber over all others including the .220 Swift.

M1 Springfield is practical as a .22-3000 Lovell magazine rifle if the work is done by Griffin & Howe. Frank Tucek of the Bronx says his is the regular 16-inch twist and will put 10 of the 50-grain Sisk bullets in 1-inch to 1 1/2 inches at 100 yards right along. His charge is 16 grains of HiVel No. 3, and he has killed chucks up to 300 yards. After several hundred rounds he can say he has never had a jam in the excellent G. & H. magazine.

L-17 Lovell is what Hervey Lovell calls his version of the abrupt-shoulder .22-3000. R-2 cases will go in the L-17 Lovell chamber but not vice versa. It is a well-stocked, heavy-barrel single-shot on the Farquharson action, and the very best 14-inch twist we have tried. The groove diameter is a scant .224-inch (6-grooves), and the charge is 16.5 grains 4198 powder behind the 50-grain Sisk bullet using the W. R. A. No. 116 primer. We tried this load, among others, and it proved to be best. It gave us 10 shots in 1.09 inches. With the same load and Western No. 6 1/2 primers our 10 shots measured 1.52 inches. Even the poorest load of any tried did fairly well, or 1 1/4 inches at 100 yards for 10 shots. Our favorite 55-grain Sisk-Niedner

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bullet and 16 1/4 grains of 4198 shot into less than 1 1/2 inches for its 10 shots.

R-2 Johnson Lovell, made by C. C. Johnson for our friend Frack, started perking right off the bat with our handloads, and nearly every load shot to the same spot at 100 yards without changing sights or point of aim. It has the 4X Marlin No. 2 scope outfit on it and a Sharps-Borchardt action. Our test loads for any R-2 Lovell are 16 1/4, 16 1/2 and 16 3/4 grains of 4198 behind the 55-grain Niedner, 50-grain Lovell and 40-grain Lovell (Sisk) bullets, respectively. The 50-grain bullet made 1.18 inches for its 10 shots, and the other two (5-shot groups) stayed well inside that same group, with 0.50 inch for the 55-grain and 1.09 inches for the 40-grain bullet. The 40-grain Hornet bullet landed 3/4 inch higher, out of the group, with 16.0 grains of 4227. Its 10 shots measured 1.85 inches (8 in 1.38 inches). The 55-grain Hornet bullet and 15.0 grains of Lightning landed 3.30 inches lower and made 2.09 inches with 8 in only 1.05 inches. This barrel has 6 grooves and a 16-inch twist. We believe it is a Diller.

R-2 Risley Lovell on the Winchester action with Savage 14-inch-twist barrel has not been nearly as accurate and reliable as our original .22-3000 Lovell made by Hervey Lovell of the same rifle components but with a 16-inch twist. Our first month of shooting, in March, produced but two fair loads. The best results were 8-shot groups of 1.54 and 1.58 inches, respectively, using 15.5 grains 4227 behind the 40-grain Hornet bullet and 16.5 grains 4198 behind the 50-grain Lovell bullet. Both had two fliers, the respective 10-shot groups being 1.87 and 2.12 inches.

In April we had equivalent results with the 55-grain Niedner bullet and 17.0 grains 3031, with 14.0 grains 4227 and from 16 1/4 to 17 1/4 grains of 4198 behind the 50-grain Lovell bullet. However, the best load developed that month was 16.5 grains 4198 behind the 40-grain Lovell bullet. This put all shots in 1 1/2 inches and 9 shots in 1 1/4 inches at 100 yards. This was the first load worthy of trial at 200 yards, where it put all ten shots in less than 3 inches.

In May we experimented with a tight and loose mainspring. Loosening the tension 1/2 turn invariably improved the accuracy. Groups ran from 1 1/4 inches to 2 1/4 inches larger when we shot it with the mainspring tight. In spite of this evidence to the contrary we are going to try an appreciably stiffer mainspring if we can get one from Winchester.

R. U. Milhoan used this rifle for some comparison tests, of penetration and combustion range, and while he had it he shimmed up the mainspring for increased tension and made a new forestock for it. His 10-shot group, fired in the wind at 100 yards, showed 1 1/4 inch vertical spread. This was in July. When we got it back, in August, we tried our three best test loads in the rifle as adjusted by Milhoan. They ran 1.66, 2.50 and 2.04 inches for the 55-grain Niedner, 50-grain Lovell and 40-grain Lovell bullets, respectively, with 8 shots in 1.36 inches, 8 in 1.62 inches and 9 shots in 1.48 inches. Not much change, if any.

.218 Bee, Model 54W. Winchester found they could not rehammer our Hornet barrel on the M-54 rifle, so they fitted a new .218 Bee barrel. It has a groove diameter of .224 inch, 6 grooves and one turn in 16 inches. The factory indoor rest group, fired at 100 yards with scope sight, has 8 shots in 3/4 inch. Two fliers make it a 1 1/4-inch group. We found these fliers to be typical. With our poorest 4X scope I had 5 shots in 3/4 inch. My fouling

group of ten, measured 1 1/8 inches, another 8-shot, by Jack, and my final 15-shot group also were 1 1/8 inches center to center.

With our handloads the 5-shot groups were very good, but the 10-shot groups ran 1.87, 2.45 and 2.64 inches at 100 yards. At 200 yards three of our preliminary 5-shot groups promised accuracy. These were: 14.5 grains 4227 and the 40-grain Lovell bullet which made 3.22 inches and, less one flier, 1.92 inches; 15.0 grains 4198 and the Remington 45-grain S. P. bullet which made 2.92 inches and, less one flier, 1.57 inches; also the latter load and the 50-grain Lovell bullet which made 3.65 inches and, less one flier, 1.77 inches. All with W. R. A. No. 6 1/2 primers.

Then we fitted a better scope, the Fecker 8X with Lee center dot, and started over again at 100 yards. With Winchester factory ammunition our groups were now slightly better. We had 9 shots in 2.18 inches, 9 shots in 1.35 inches, 8 shots in 1.18 inches, 10 shots in 1.80 inches and 10 shots in 1.71 inches. Our handloads, fired at the same time, seemed to be quite satisfactory, as they gave 10 shots in 1.55 inches (7 in 0.98 inch), 9 shots in 1.55 inches, 8 shots in 1.35 inches and 5 shots in less than 1 1/2 inch. The last 5-shot group made one small ragged hole. It was the 50-grain Lovell bullet and 13.5 grains of 4227 powder. The next best load was 15.0 grains 4198 and the 55-grain Hornet bullet which made the group first mentioned. The load which put 8 shots in 1.35 inches was 14.5 grains 4227 behind the 40-grain Lovell bullet. All handloads in this lot were capped with Western No. 6 1/2 primers.

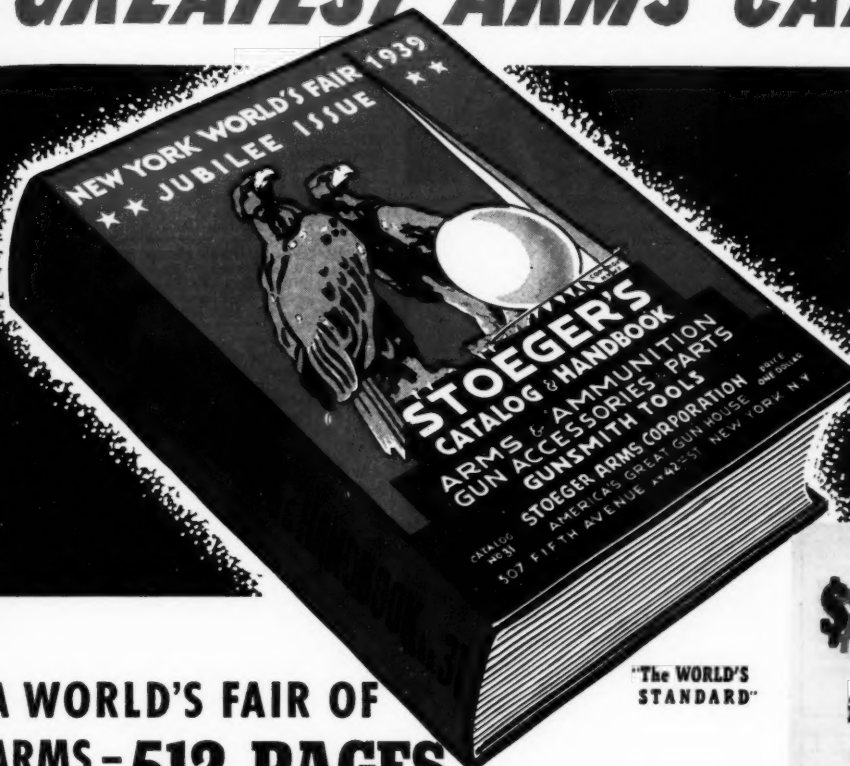
.22 Savage Hi-Power in the Model 1899, takedown lever action, does well for George St. Denis of Medford, Mass. It has a 22-inch barrel with a groove diameter of .2265-inch, and the same caliber should show definite improvement in exterior ballistics when equipped with a solid frame and a heavy 26-inch barrel. As is, it keeps pace with the Service rifle in 200-yard military shooting. His load is the .2235-inch R. A. Hornet bullet and 27.0 grains of HiVel No. 3 powder, with F.A. No. 70 primers. He estimates the velocity at 3750 f.-s. in his 22-inch barrel. He also makes solid bronze bullets in .2265-inch diameter which give him 2 1/2-inch 5-shot groups at 100 yards. This bullet is .805-inch long with a "10-caliber" head, and it weighs 46 grains. The other varmint load "fairly pulverizes" woodchucks and will penetrate three leaves of an automobile spring at 50 yards.

Two-Dot Rear Sights. Ralph Tucker, jeweler of Webster City, Iowa, who is 46 years old, improved the sights on his .22-32 S. & W. revolver by adding an ivory dot on both sides of the notch of his rear sight. These dots are of a size which approximate, in appearance, the size of the front-sight bead when the revolver is held at arm's length, as in offhand shooting. He says it is the clearest set of sights for poor vision, and poor light, he has ever seen.

The two dots line up with the dot of the front bead in the middle. While he used ivory pins in countersunk holes, the scheme would work equally well with the round, gold, Call sight and perhaps with the square, red, King sights. The advantage of this arrangement is that it does not interfere with the regular silhouette appearance of the sights against white targets when the gun is used on the target range. It is also a very simple alteration for anyone who has dental or jeweler's tools, or friends in either profession.

No-Slip front strap is easily applied to any autoloading pistol by loosening the two stocks and slipping the edges of a rectangular piece of emery cloth beneath them. The emery provides just enough roughness for security without seeming too harsh. The idea was suggested by James A. Allen, Santa Monica, California, and proved effective for us. We found it did not do at all to put the emery cloth or sandpaper on the back of the grip as control was then uncertain and accuracy suffered.

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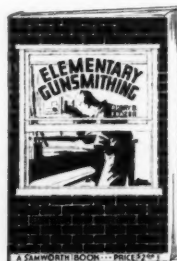
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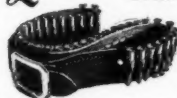
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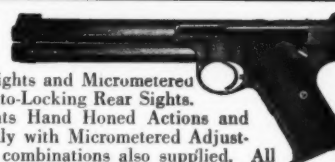
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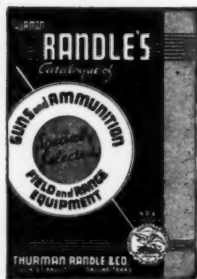
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WINCHESTER '07 .351, Lyman 1A rear, 2 extra magazines, very good. Remington M14 .30, poor. WANT—52 Sporter, 54-70 Hornet or .257, Colt's .38 O.M.T., Zielklein. Monroe K. Ruch, Chloride, Arizona. 9-38

WINCHESTER Pump '97 Pigeon Grade 12-30" full choke good, \$40.00. Waltham Jewelers Lathe, \$35.00. 2 Western Field Pump 12-30" good, \$12.00 each. Smith & Wesson 38 Safety Hammerless good, \$8.00. WANT—Telescope, Camera, or cash. R. E. Hayes, Oriskany Falls, N. Y. 9-38

SALE OR TRADE—Single Shot Sedgley-Remington Hornet Target Pistol, perfect, \$32.00. WANT—Perfect Woodsman, 30-06 Tools, Moulds, Ideal Lubricator. Charles Grano, 1801 Church St., Cleveland, Tennessee. 9-38

42 WINCHESTER Shotgun, excellent, \$22.00. 4 1/2" B. Hi-Standard, holster, \$15.00, excellent. WANT—Scope, Target Sight, or B & L Prismatic. Geo. Shaw, Zion, Ill. 9-38

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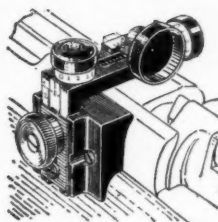
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WANTED—Rifle suitable for deer, light weight preferred, good or better, state best cash price. Frank Ackerman, Phillips, Wisconsin. 9-38

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WANTED—Winchester 1894 38-55 Carbine or short rifle. Pistol grip stock preferred. Very good to new. Albert Kratz, Hemet, Calif. 9-38

WANTED—44 Henry; Winchester 1866; Sharps 40-90 Straight. Cartridges for 40-90 Bullard; 44-77 Sharps; 52 Sharps rim fire; 52 Sharps, linen; Smiths Carbine; 58 Musket, paper. G. F. Brown, Presque Isle, Maine. 9-38

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WANTED—Good Winchester 70 Action, cash. State caliber, price. C. Bonnell, 760 1/2 Commerce St., Tacoma, Washington. 9-38

WANTED—Mannlicher Schoenauer Carbine, full stock, good. Describe. Lowest cash price. D. E. Larson, 1128 Harrison, Topeka, Kansas. 9-38

WANTED—Zeiss 18x50 Spotting Scope. W. H. Oakley, Jr., East Falls Church, Va. 9-38

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WANTED—Noske 2½X Telescope; 7x50 m/m Marine Dialyt; 8x56 m/m Yacht Dialyt; Hensoldt Binoculars; excellent condition. Sidney Morris, Jackson, Wyoming. 9-38

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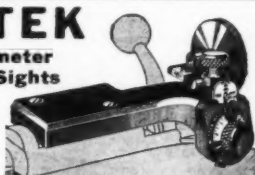
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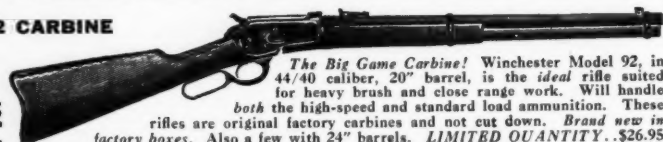
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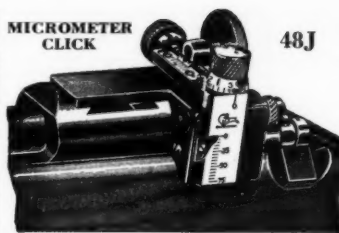
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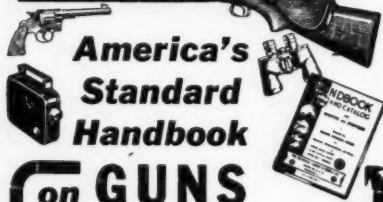
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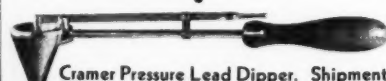
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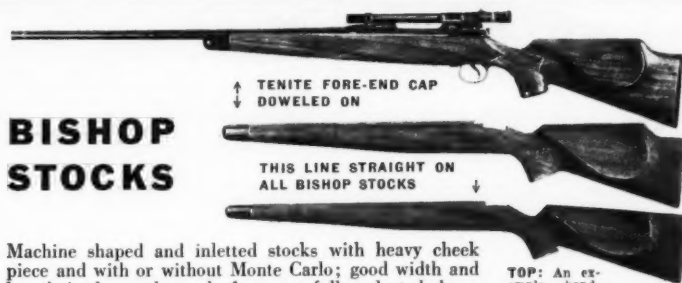
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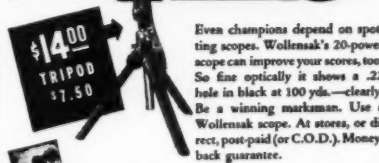
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At the New Jersey Rifle and Pistol Club matches, Plainfield, N. J., July 24, Rogers won the .22 National Course match with WESTERN, score: 290. He was on the U. S. Customs Patrol teams which won two matches—the 4-Man Team Match, .22-Caliber or larger, Camp Perry Course, score, 1181, and the 5-Man Team, .38-Caliber or larger, Police "L" Course, score, 1486. On August 3, same 5-Man Team won the Annual U. S. Treasury Dept. Team Match at Washington, D. C., with WESTERN. Their score of 1463 x 1500 was fired on the Army "L" target, with 4-inch service revolvers.

All of the following matches at Camp Ritchie were won with WESTERN ammunition:

CAMP RITCHIE PISTOL MATCHES

Camp Ritchie, Md., June 30-July 4.

ALL AROUND CHAMPIONSHIP

1. Gunner M. O. Wilson, U. S. C. G., 838

.45 INDIVIDUAL CHAMPIONSHIP

1. Gunner M. O. Wilson, U. S. C. G., 274

.38 INDIVIDUAL CHAMPIONSHIP

1. CBM Paul Goulden, U. S. C. G., 287

2. W. R. Walsh, F. B. I., 284

.38-CALIBER TEAM CHAMPIONSHIP

1. Philadelphia Police Team, 1151

2. U. S. Infantry Team, 1136

POLICE TEAM MATCH—CAMP PERRY

POLICE COURSE

1. Philadelphia Police Team, 1145

POLICE DOUBLES—NATIONAL

MATCH COURSE

1. Det. J. P. Carr and Ptl. John Rhodes, Philadelphia Police, 559

.38-CALIBER AGGREGATE

1. CBM Paul Goulden, U. S. C. G., 849

2. W. R. Walsh, F. B. I., 836

3. Ptl. Wm. Weiss, Philadelphia Police, 830

.38 TIMED FIRE MATCH

1. CBM Paul Goulden, U. S. C. G., 196

2. W. R. Walsh, F. B. I., 194

3. Ptl. Wm. Weiss, Philadelphia Police, 194

.38 RAPID FIRE MATCH

1. W. R. Walsh, F. B. I., 191

2. Ptl. Anna Cates, Philadelphia Police, 190

3. CBM Paul Goulden, U. S. C. G., 189

SPECIAL MATCH—38—CAMP PERRY COURSE

1. W. R. Walsh, F. B. I., 298

2. Gunner M. O. Wilson, U. S. C. G., 292

3. Capt. Sidney R. Hinds, U. S. Infantry, 289

Gunner M. O. Wilson of the U. S. Coast Guard also won the .45 Aggregate, score: 825—the .45 Slow Fire, score: 177—the .22 Individual Championship, score: 285—the .22 Aggregate, score: 863—the .22 Slow Fire, score: 188—and the .22 Rapid Fire, score: 196. All with WESTERN!

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U. S. Customs Patrol Pistol Team. *Left to right:* M. R. Rogers, A. W. Quick, P. M. Chapman, Lee Echols and Ernie Ballinger.



V
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